

# MOTHERS IN ASTRONOMY



EDITED BY

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# MOTHERS IN ASTRONOMY



## A PROJECT TO:

- Amplify the voices of mothers in astronomy
- Raise awareness of the challenges they face
- Highlight the positive impact of motherhood on their careers
- Create a collective empowerment by inspiring and supporting each other.

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Front cover: The “Trifid Nebula”, a stellar nursery full of embryonic stars with an illustration of a mother and a baby overpainted by Dr. Martha Irene Saladino<sup>1</sup>.

The credit of the “Trifid Nebula” corresponds to:  
wildflower1555 via [www.alphacoders.com](https://www.alphacoders.com).

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<sup>1</sup> **Dr. Martha Irene Saladino:** She is an astrophysicist and science communicator. She created all the illustrations and edited this book.

Edited by

Paola Pinilla  
Maria Claudia Ramirez-Tannus  
Martha Irene Saladino Rosas



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# INTRODUCTION

Being mothers is the best thing that has happened in our lives. Nevertheless, besides the challenges that we face as women in STEM, motherhood has brought additional difficulties to our careers.

We are both young mothers working in astronomy and we know that there are several amazing mothers who have faced or are facing similar situations to us. However, we have the feeling that their stories and points of view are not visible, with the consequence that there is an apparent lack of role models for mothers in astronomy.

This is the reason why we decided to start this project. We want to amplify the voices of mothers in astronomy as we battle for equal opportunities at work. We also want to raise awareness of the challenges that we face and to highlight the positive impact of motherhood in our careers. This with the objective to show that there are a lot of role models at every career stage and to raise collective empowerment by inspiring and supporting each other.

The project started as something small, where we contacted some of our mother colleagues and asked them to answer a survey and to suggest other mothers that we could contact. We are extremely happy because we got many more contributions than we were expecting! But we know that we are far from reaching all the mother astronomers out there. Nevertheless, we hope that this book is one way to contribute to creating a strong community, where we encourage each other to keep going with our daily difficult tasks.

We are very excited about the result of this book! We loved each and every one of the stories (thank you to all of you!) and we hope that you enjoy them as much as we did.

Paola<sup>1</sup> & Macla<sup>2</sup>  
May 8<sup>th</sup>, 2022

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1 **Dr. Paola Pinilla:** She is a group leader at MPIA and an associate professor at MSSL/UCL. She works on the topic of planet formation.

2 **Dr. Maria Claudia Ramirez-Tannus:** She is currently an MPIA fellow working on massive star formation and the effect of extreme environments on protoplanetary disks.

# AIDA WOFFORD

FULL PROFESSOR



Instituto de Astronomía, UNAM, México



1 child



What do you enjoy the most about being a mother?

Hugs, kisses, drawings from my kid. Observing him grow through the stages of life. Observing how mommy and daddy combine in one little creature. Gives a purpose to my life.

“It helped that my partner wants to stick around and support my career.”

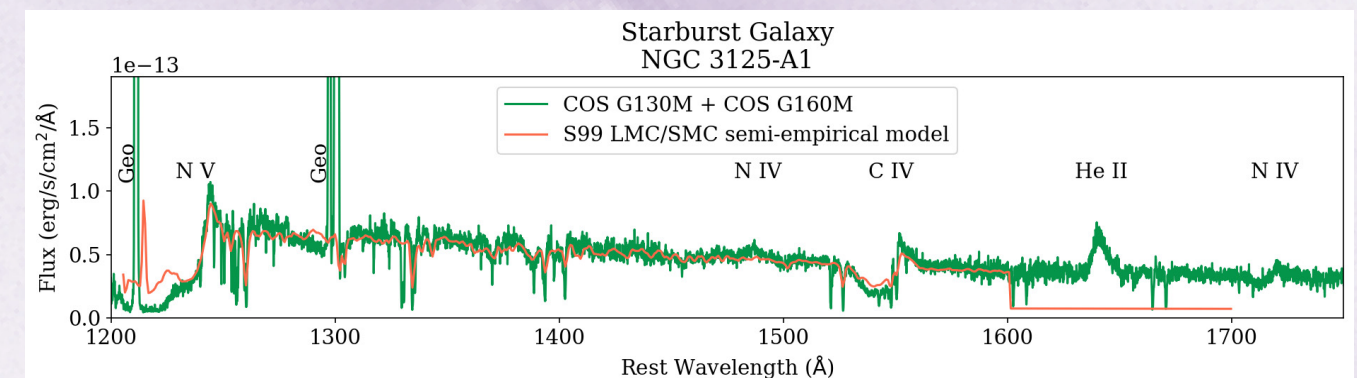
What's been the biggest challenge you've experienced when combining motherhood and academic life?

Lack of sleep and quietness. The stress of not having a stable position while being the main provider of my family.



Has the pandemic impacted your career and family in the last couple of years?

The pandemic has been good for our family because we get to spend more time together. My kid is 10 and doesn't need so much attention as when he was little. I don't have any good advice. Being the mother of a young child is exhausting. I guess it really helps if only one parent works and the other one is a stay-at-home parent.



A spectrum is worth a thousand images. This one was obtained with the Hubble Space Telescope. The portion with the He II line was completed during the pandemic and made us really excited about future work.

Which positive effects has motherhood had on your career?

It helped that my partner wants to stick around and support my career.



# AINA PALAU PUIGVERT

PERMANENT RESEARCHER



Universidad Nacional Autónoma de México, México



2 children



**What do you enjoy the most about being a mother?**

The ability to educate and form children to make a better future.

“Motherhood opened my mind and gave me a more human and realistic view of life.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Both motherhood and academic life are extremely time-consuming. Finding the equilibrium between these two roles is not easy and requires many times to calmly think about what's most urgent or most necessary in each case. Elucidating this is the biggest challenge for me.



**Has the pandemic impacted your career and family in the last couple of years?**

The pandemic has allowed us to share more time with my kids and witness many of their achievements. This has been so gratifying. However, combining both work and motherhood in the same physical place is not easy and here my husband has played a crucial role. Thanks to him, the pandemic has only barely impacted my career.



*Thanks Laia, Francesc, and my husband Miguel for the joy of motherhood!*

**Which positive effects has motherhood had on your career?**

Motherhood opened my mind and gave me a more human and realistic view of life. I learned to evaluate events more objectively, forget irrelevant problems, and concentrate on what is really worth.



# ALESSANDRA ALOISI

HEAD, SCIENCE MISSION OFFICE



Space Telescope Science Institute, USA



2 children

## What do you enjoy the most about being a mother?

For me, being a mother came first before anything else, including a successful career in astronomy. I prioritized having kids over getting tenured, and I don't regret any single minute of it. The unconditional love of a child is something that has no equal, and I was not willing to sacrifice it for a career. My favorite part of a hard-working day is when in the evening I sit around the table with my two kids and my husband and we talk about our day. Now that my kids are teenagers, it's amazing how much support they give me during hard times and how much fun we have together as a family when we're able to take time off from our everyday responsibilities and explore the world together.

“Parenting is a skill I use at work all the time when managing people: it's about connecting with people, understanding their needs, and figuring out a way to make them fulfilled with the work they're doing.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The biggest challenge has been to give up a tenure track because I wanted to be there for my kids when they were little. My compromise was to transfer from a tenure track to a parallel track with less independent research time and more focus on work to support the missions of our institution. This was a tough decision that I needed to make in order to limit travel and overtime work. →

→ I was able to feel fulfilled by this decision by focusing my career on what I was enjoying the most in astronomy, that is to say, managing people, and by defining my own success.

## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Since my kids were one tween and one teenager when the pandemic started, they did online schooling without too much supervision. This meant that I could focus on my work even more than before (no time for commuting). My kids showed a lot of resilience during the pandemic and were a great example of how you can survive if you gracefully adapt to even the most unfavorable circumstances. For young mothers who are struggling during the pandemic, I recommend hanging in there and trying to appreciate the precious happy moments that they have with their kids. They grow fast and you do not want to have regrets when you look back!



My area of astronomical research is nearby (low-metallicity) star-forming galaxies. The low-metallicity blue dwarf galaxy I Zw 18 is my Astronomical “baby”. Through my research with ACS onboard the Hubble telescope, I was able to show that this “toddler” galaxy was an “adult” after all. Image credit: NASA, ESA, and A. Aloisi (STSc/ESA).

## Which positive effects has motherhood had on your career?

Being a mother has taught me how to be more effective with my time since the reward was getting everything done in less time and having more time to spend with my family. Parenting is also a skill that I use at work all the time when managing people: it's all about connecting with people, understanding their needs, and figuring out a way to make them fulfilled with the work they are doing.



# ALICE ZURLO

ASSISTANT PROFESSOR



Universidad Diego Portales, Chile



1 child



**What do you enjoy the most about being a mother?**

My little one is just 5 months old, and it's amazing to see how he's growing fast! I love his smile and he's so happy and nice. He's very clever and enjoys a lot playing the piano. I'm so proud of him.

“The pandemic affected my career in a good sense, I could work from home and take my time with the baby.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Breastfeeding is very difficult if you have lots of meetings. I had to take part in several meetings while breastfeeding, and to be polite, I was totally hiding it. I let the camera turned on and just followed normally with a poker face.



**Has the pandemic impacted your career and family in the last couple of years?**

Sure. But in a good sense. I could work from home and take my time with the baby.



*My son Juno and me.*

**Which positive effects has motherhood had on your career?**

Just that I'm happier than before. But it's very difficult to work now that he's so little.



# ANJA FELDMEIER-KRAUSE

POSTDOC



MPIA, Germany



2 children

## What do you enjoy the most about being a mother?

I love watching my children grow and learn new things. Seeing them practicing and mastering a new skill fills my heart with joy. It's wonderful how my son begins to express more complicated thoughts. He never stops asking questions and wants to know everything. If I don't know the answer, we try to find the answer together. My daughter just begins to interact with the world around her. It's amazing how children grow and learn so quickly.

“Motherhood made me realize that, as much as I enjoy my work, it is just a job. If I had a bad day at work, it doesn't affect me as much as it used to.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

I find it hard to leave my children and travel to conferences or observing runs. Especially in the first year of my children's lives, when I'm breastfeeding. I can't take my children with me, as no family member can come with me and take care of the children during the trip while I'm working. So I have to leave my children at home with their father, where they can attend daycare. For this reason, I didn't travel much in the past years, even before the start of the pandemic. In a way, the pandemic helped me, as I could attend online conferences and do remote observing, which was not an option before. →



→ Another thing is that I don't work as many hours as I used to before I had children. On weekends I spend time with them, while my childless peers work extra hours, as I used to. If the children actually go to bed early, I'm often too tired or have to do household chores. I had to learn to use my work time, when my children are at daycare, more efficiently.

## Has the pandemic impacted your career and family in the last couple of years?

In the first months of the pandemic, my 1-year-old son's daycare was closed and my husband, who's also a researcher, and I took turns in working and taking care of our son. As a consequence, our productivity went downhill. Luckily, the daycare opened after 3 months, but they occasionally have to close for 1-to 2 weeks when a child or a teacher catches the virus. Now, with a baby and a 3-year-old toddler who no longer naps, it is almost impossible to work more than a few hours in the evening during the days when daycare is closed.

We live in the USA, and the pandemic has also prevented us from visiting our family in Germany for over 2 years.



## Which positive effects has motherhood had on your career?

I have a better work-life balance. On the weekends, I spend time with the family and there's barely time for work, so I can really turn off thoughts about research, and come back more relaxed on Monday.

Overall, motherhood made me realize that, as much as I enjoy my work, it is just a job. If I had a bad day at work, it doesn't affect me as much as it used to. I became mentally stronger and less stressed about my work successes or failures.



# ANNA MCLEOD

ASSISTANT PROFESSOR



Durham University, UK



2 children



**What do you enjoy the most about being a mother?**

Watching them evolve into the individuals they are, and unconditional love ;)

“ I’ve learned to deal with monstrous multitasking periods, but above all, I’ve learned patience. ”

**What’s been the biggest challenge you’ve experienced when combining motherhood and academic life?**

Lots of things. I had my first child 3 weeks before handing in my MSc thesis, so I had to work right after he was born. Then, when I started my PhD, I always felt like I was behind my peers because I simply could not put in the same hours of work. I was also missing out on some departmental social life when he was still really small. Then, I had my second child 6 weeks after defending my PhD thesis, and ended my PhD contract during my maternity leave. I then followed my husband (also an astronomer) to New Zealand, where he had a permanent position but I did not have a job...→



→ I had to leave academia for a year, during which I worked as a software engineer and applied (successfully!) for a postdoctoral fellowship. So I found my way back to academia, and then things started to pick up: I got a job at UC Berkeley, then a Hubble Fellowship, and I’m now faculty at Durham University, where I successfully negotiated a spousal hire for my husband. So it turned out really well, but it was hard! My younger son is 5 now and has lived in 4 different countries...

**Has the pandemic impacted your career and family in the last couple of years?**

It’s impacted my work profoundly. During the various lockdowns, I was the one in charge of homeschooling, while also having teaching duties at university. My research suffered greatly, and I’ve only published one first-author paper since the beginning of the pandemic. With the new academic year that started in October and a heavy teaching load, I have not done research in months now.



*This picture’s already over a year old. It’s one of our first nights in the UK after moving here from the US!*

**Which positive effects has motherhood had on your career?**

I learned to let go. I don’t need to work from 8 am until 10 pm to be happy or successful. I’ve also learned to deal with monstrous multitasking periods, but above all, I’ve learned patience.



# ANNA WATTS

FULL PROFESSOR



University of Amsterdam, The Netherlands



2 children

What do you enjoy the most about being a mother?

Biased, of course, but my kids are the most interesting, funny, wonderful things in my life.

“Because my kids are amazing, and if I’m going to take time away from them, it had better be for a good reason!”

What’s been the biggest challenge you’ve experienced when combining motherhood and academic life?

Realizing that I had to completely change my way of working—that frantically cramming things in at the last minute, or working all hours, was simply not sustainable or compatible with my family life.



Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

It’s been incredibly tough, combining an increased workload (particularly on the education management side) with having the kids at home a lot more. Research time has been really squeezed, which is sad because that’s the part of the job that I love the most. I don’t think I have any helpful advice beyond saying that you are not alone if you are feeling overwhelmed.



Solar System.

Which positive effects has motherhood had on your career?

I’ve been much more careful about which projects I choose to take on—really focusing my attention on things that I know will be interesting. Because my kids are amazing, and if I’m going to take time away from them, it had better be for a good reason!



# ASHLEY J RUITER

SENIOR LECTURER



University of New South Wales (Canberra), Australia



3 children



## What do you enjoy the most about being a mother?

Seeing when my kids navigate tricky situations, showing kindness, respect, and reflection.

“I’m better at managing many tasks, managing my time [...] and I have my priorities in order.”

## What’s been the biggest challenge you’ve experienced when combining motherhood and academic life?

Well, the COVID-19 lockdowns + homeschooling were bad. But my job wasn’t really in jeopardy, so it wasn’t the most terrible situation. I think probably never living on the same continent as my parents—that’s been a bit difficult. We live in the Southern Hemisphere and both sets of grandparents (our 3 parents) live in the North... we haven’t seen them in going on 3 years. Though in a way this might make us stronger and more united parents but that’s hard to quantify.



## Has the pandemic impacted your career and family in the last couple of years?

The pandemic has certainly impacted my research. I had landed a ‘tenure stream’ position by securing a fellowship ~2 years before the pandemic, so I was not applying for jobs (that aspect I didn’t have to worry about). But I couldn’t start my research group, thus had zero PhD students (or postdocs) during all of 2020 and half of 2021 because of COVID-19 border restrictions, although I had 3 students waiting to start their PhDs with me I had worked very hard to get. I felt that I just couldn’t compete with more well-established group leaders that already had a group going in their institution, and it was just bad for morale. Being at an institute with very few astronomers already just made things extremely difficult in terms of the recruitment of domestic students. So I just had to wait meanwhile, barely getting any research done and struggling with admin and teaching duties. The times when we had to do ‘homeschooling’ for 3 kids (about 2 months in 2020 and 2.5 months in 2021) also put a huge strain on my husband, me, and my kids (my kids fight even when there is no homeschooling haha). I suppose it helped me a bit to remind myself things could be much worse, and that things will improve (and they have improved).



My kids. From left to right: Cici (oldest), Stirling, and Nico.

## Which positive effects has motherhood had on your career?

Better at managing many tasks, managing my time (though I could still be better at this haha!), and I think most important: saying “NO” to things. And I have my priorities in order.



# AURORA SICILIA-AGUILAR

READER



University of Dundee, UK



3 children



## What do you enjoy the most about being a mother?

Being able to see the world through the eyes of my children, learning from their experiences, and just being around with them, talking to them, being close to them. Cuddling. Playing. Talking and listening to them. There are a bit too many things to just phrase it in a few sentences.

“With three kids, you can still have a lot of fun—and support if things are getting stressful/depressing—even if you don’t leave the house.”

## What’s been the biggest challenge you’ve experienced when combining motherhood and academic life?

The two-career issue. Having a husband that is also a researcher means that you have a limited number of possibilities to apply for positions while keeping the family together. This affects postdoc positions, and the number of suitable permanent positions (we didn’t want to live at 250+ km for longer than a couple of years). Because of that, it takes longer to get a permanent (or, at least, more stable) position, and this all is taken against you whenever you apply further. →



→ There are also many things that are impossible to delay and put extra pressure on. There's no allowance for extra proprietary time for telescope data if you go on maternity leave, and if you publish something but are unable to present it because of pregnancy/childcare, it will be to a large extent as if your paper didn't exist. Universities being understaffed regarding teaching also make it hard to be on leave without being unfair to the rest of your colleagues. And this affects both mothers and fathers.

## Has the pandemic impacted your career and family in the last couple of years?

Home-schooling the children and not seeing family at a time when you need to reinvent all your teaching to run online has been a huge challenge. Some school teachers have been great at helping the children while learning from home, but others delegated it all on the parents. Universities have also failed to account for the extra work put in for teaching online. And research... mostly disappeared, during this time.

The only good thing is that there is now a lot more understanding when people cannot travel or are ill. Online conferences make it possible to attend nearly as well as if you were there. I would have welcomed this when I was pregnant or had a baby because, if you don't travel, can't give talks, can't visit other institutions... your research doesn't exist. If the online option would be here to stay, it would make a difference for mothers (and for carers, people with mobility issues, citizens from countries for which obtaining visas is not easy, and the environment).



With Rodrigo, Elvira, and Veronica at The Hermitage, Scotland.

## Which positive effects has motherhood had on your career?

The positive effects are huge. Having a family who cares about you means you have a strong network of support even when things are looking bad or just utterly stressful. I think having to be on the pandemic on my own or just with my husband would have been much worse. With three kids, you can still have a lot of fun—and support if things are getting stressful/depressing—even if you don't leave the house.

I also think that being a mother helped me to very efficiently disconnect from work when needed. This has a positive effect because, when you work, you are working (you can't waste your time, because that would take off time from your family, so you are at full speed) and when you aren't working, then you have your mind on something else and feel much fresher when coming back to your work and open problems. So I think this increases overall efficiency and time management.



# BARBARA ERCOLANO

PROFESSOR



LMU, Munich, Germany



2 children

What do you enjoy the most about being a mother?

I love discovering the world again through the eyes of my children.

“ I love discovering the world again through the eyes of my children. ”

What's been the biggest challenge you've experienced when combining motherhood and academic life?

Juggling feeling guilty for not spending enough time working with feeling guilty for not spending enough time with the kids.



Has the pandemic impacted your career and family in the last couple of years?

My priority in the pandemics has been trying to protect my kids from experiencing fear, anxiety and confusion. It has taken a lot of effort to give them some sort of normality.



*My children.*



# BELINDA WILKES

ROYAL SOCIETY WOLFSON VISITING FELLOW | SENIOR ASTROPHYSICIST



University of Bristol, UK | CfA, Cambridge, MA, USA



2 children

## What do you enjoy the most about being a mother?

Being a mother has been the most amazing and rewarding experience of my life, despite the fact that I have a wonderful career, which is also amazing and rewarding. I have most enjoyed getting to know them, watching them grow and learn, and enabling that growing and learning while allowing them to become, and accepting them as, their own person. It's so exciting to see them explore new activities or subjects, to get excited about them, to find their talents and loves and to help them develop them, to prepare them for the next steps, provide advice and opportunities as far as I was able, and to be there to help them out when they needed me to do so.

“This experience [motherhood] translated well as I took on more leadership and community support work, helping me to interact with people, to listen to them, put myself in their shoes...”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

My most difficult and challenging time period was while I was going through a divorce, followed by being mostly a single mother for their teenage years. I had little backup and couldn't work the hours I'd have liked to work. My science output suffered during this period as, given my job, it mostly had to be done in extra time anyway and this I didn't have.

## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the covid-19 pandemic?

I'm reaching the end of my career so it hasn't had a major impact from the career path viewpoint. However, there is a fair amount of science, such as data analysis, which is harder to do from home. I also moved from the USA to the UK in mid-2020 and was visiting other departments, so I did not have the support in setting myself up at home that I would normally have had.

I've seen my younger colleagues who are also mothers suffer considerably because of childcare problems, home-schooling, and so forth. I encourage those who have had a difficult time during the pandemic to admit it, first to themselves, and not to be shy about doing so to colleagues and others. They should make clear on their resume/CVs that during these two years they couldn't work efficiently and often not full-time, that their production was severely affected, and that this time period should not be included in any assessment of their career path to date. This is particularly true regarding applications for positions, grants, etc. Also, they should take advantage of any programs available to help them recover, e.g. grant extensions, etc.



Me and my two children at the top of the tower at Ludlow Castle, England, UK.

## Which positive effects has motherhood had on your career?

Being a mother makes one more understanding of other people. As a mother, I was often my children's teacher, in everyday life, and beyond. I learned to put them first, to drop everything I was doing when this was needed, to be more organized, and to be more efficient when I did get time to myself, e.g. at work. This experience translated well as I took on more leadership and community support work, helping me to interact with people, to listen to them, put myself in their shoes, and meet them in their space in order to understand and then solve their particular problem(s). Leadership is all about the people, listening to them, communicating with them, enabling them, looking out for them and protecting them, ensuring they can do their jobs, and setting the right tone both in individual relationships and within the whole program team. Bringing up children requires a very similar approach, though of course on a much more personal level.



# BESS FANG-SORTAIS

ASSOCIATE ASTRONOMER



LNE-SYRTE / Observatoire de Paris, France



2 children

## What do you enjoy the most about being a mother?

Seeing the smiles of my children and observing their development.

“ Having children also brings opportunities to learn about subjects far from my area of expertise, sometimes giving new ideas for my professional activities. ”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Managing daily routine and still having enough time to think about and do science.

## Has the pandemic impacted your career and family in the last couple of years?

Definitely yes.

I'm an experimental physicist. COVID-related school closures (positive cases, teachers/caregivers on strike, etc), or testing procedures make it difficult to maintain a predictable physical presence in the lab, leading to additional complications for supervising students and post-docs. Working at home with small children around is simply impossible. Meanwhile, administrative duties didn't decrease, and teaching took up more time as extra time is required to adapt existing materials for online learning. My research activities, which are the most compressible part of my professional life, certainly suffered.

As for family life, long periods of confinement took some joy away from being home. More logistics and more conflict management mean less peace of mind. My attempts to isolate work from home are met with limited success.

My conclusion: try to survive and outlive this strange time, which would hopefully not last much longer.



## Which positive effects has motherhood had on your career?

I met other mothers/fathers at work and we have been trying to support each other in whichever ways we can. Having children also brings opportunities to learn about subjects far from my area of expertise, sometimes giving new ideas for my professional activities. I like to believe that all these factors would eventually impact my career positively, but 'how exactly' remains an open question for now.



# BONNIE J BURATTI

RESEARCH FELLOW AND TECHNICAL SECTION MANAGER



NASA Jet Propulsion Laboratory, USA



3 children

**What do you enjoy the most about being a mother?**

Being aware of what matters most, and being cued into a younger generation.

“Being a mother for almost 40 years has given me the wisdom and understanding to put things into perspective and to be supportive and compassionate. The stars and planets will wait.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Sick children.



**Has the pandemic impacted your career and family in the last couple of years? If you are a senior mother, what would you recommend to young mothers who are struggling during the covid-19 pandemic?**

It's been a challenge managing about 200 Planetary Scientists at NASA during the pandemic. But being a mother for almost 40 years has given me the wisdom and understanding to put things into perspective and to be supportive and compassionate. The stars and planets will wait.



*Here I am with my kids and husband about 1991.*

**Which positive effects has motherhood had on your career?**

Motherhood has forced me to be super-organized. Also, I'm more compassionate and understanding, and I know what really counts.



# CATHERINE BROCKSOPP

ASSOCIATE LECTURER



Open University, UK



2 children



What do you enjoy the most about being a mother?

Giving them the freedom to be themselves.

“My career will always be there. I only get to be their mother once.”

What's been the biggest challenge you've experienced when combining motherhood and academic life?

Choosing between them. I chose to home educate them to give us maximum freedom.



Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Not really, it's mostly just fitted in. Go easy on yourselves. Understand about attachment and how parental love will go a long way. No need to feel guilty about not being with other babies. Socialization can come later.



My children.

Which positive effects has motherhood had on your career?

A new perspective as to what is important. My career will always be there. I only get to be their mother once.



# CATHERINE HEYMANS

ASTRONOMER ROYAL FOR SCOTLAND



University of Edinburgh, UK & Ruhr University Bochum, Germany



3 children

## What do you enjoy the most about being a mother?

My kids are a wonderful daily reminder that to be a scientist is to remain a kid at heart. We've never grown out of asking the question "why?" on repeat! We're also wildly excited about discovery, whether that is through prodding and poking (biologists and chemists), building things (engineers), smashing things together (particle physicists), or just watching and waiting to see what the Universe might have to share with us (astronomers). In being part of my kids' STEM journey, I'm rediscovering my love for it all over again.

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Each of my children marks a different point in my academic career:

- **#1** arrived when I was a postdoc with few responsibilities (GOOD), but was far from family with no secure job (CHALLENGING).
- **#2** arrived when I still had no job security and was leading a growing team of researchers who were dependent on me (CHALLENGING), but at least we were closer to the extended family by this time for support (GOOD).
- **#3** arrived when I finally had a secure faculty position (HOORAY), but by this time my responsibilities for others were so significant that proper time out for maternity leave was challenging—happily by child **#3** though you're a total pro.

On the balance, all these challenges were absolutely worth it, but I can attest that there is no optimal time to become a mother in academia. My advice to others thinking of starting a family would be to go for it when you're ready—don't let anyone tell you that should delay until you have that permanent job.



## Has the pandemic impacted your career and family in the last couple of years?

If the words "home" and "school" are ever hyphenated together again I will cry buckets. Those periods were really really tough. But we did it—and as the phrase goes "what doesn't break you, only makes you stronger".

“My kids are the highlight of my day. They keep me happy, sane, and grounded.”



## Which positive effects has motherhood had on your career?

There's a mantra in my team that "a happy scientist makes for a good scientist" - our productivity is markedly improved when the health and well-being of the team is high. In order to create ideas, innovate, and solve unanswered questions, the key ingredient that I need to provide my group is a positive and welcoming working environment. The same mantra applies to me personally, and this is where motherhood comes in for me. My kids are the highlight of my day. They keep me happy, sane, and grounded.



# CECILIA CECCARELLI

ASTRONOMER



IPAG/Université Grenoble Alpes, France



2 children

## What do you enjoy the most about being a mother?



There are so many things that it is really difficult to pick up a few. The first thing is to love them unconditionally and feel their love for me (I know, this seems so honeyed... but this is it). Spending time and playing with them, seeing them grow and become independent persons are the greatest joys of my life. I have two daughters, 26 and 28 years old at the time I write this note. It's just fantastic to have them, and also to see how my taking care of them is slowly converting into them taking care of me. It really fills me. When they were small kids, it was so beautiful to see them play and invent new universes, and read stories and play games together (we still do it, but the games changed). Actually everything. Growing as teens led to the usual stress because I couldn't know where it would end up. Yet, it was great to see them changing their skin to become adults. I don't know, maybe being a mother is like having the possibility to live more than your own single life.

“Maybe being a mother is like having the possibility to live more than your own single life.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

There were various big challenges. The first one was connected to the usual two-body problem: to choose to break apart my family or resign from the position I had in Italy at the CNR. I chose the second option and, luckily for me, it eventually resulted to be a great choice from a professional point of view too. The physical tiredness during the first years was, for me, a big challenge. I say to young mothers: even if it seems impossible, you'll survive as we all did! Then, of course, the everyday organization when my daughters were young was another big challenge. →



→ I drastically reduced my missions during the first 6 years of their life, completely giving up missions to the telescopes (at the time we went to do our observations). And, more in general, I had to organize my days to have time for both the kids and the job. I noticed I became much more efficient compared to when I didn't have kids, a feeling that other mother-colleagues told me felt too. Finally, I had sometimes difficulties with colleagues that did not understand that I had to get home “early”.

## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

I'm a senior mother and had some difficulty as well, even though not on a day-to-day basis, because it was exactly the time when my two daughters were ready to enter the work world, which was blocked.

That said, I understand that caring for young kids during the last two years of restrictions must have been hell. My so-called recommendation is simple: take it easy, we are talking about two years over a carrier that will take over 40 years! I know it seems almost a joke, but I'm serious. The most important is for you not to be burnout trying to do everything! None of us is superwoman. Take it easy and I am pretty sure that you will catch up. Even though it was not the pandemic stress, I had my years of big stress. I learned the lesson that I just wrote: not being burnout will allow you to catch up faster and better.



Here are my daughters in a recent picture: on the left Flavia and on the right Valeria. As Gollum would say, “my precious”.

## Which positive effects has motherhood had on your career?

As I mentioned above, I had my own down years as anybody else. What always put me back on my feet were my daughters. They are an incredible counterweight that keeps me in (my) equilibrium whatever. They give me the reference for all the problems and issues that appear in life because everything is a matter of reference. This more than counterbalances the time I “spent” on them. It is a burst, an infinite source of force. Having children also has some very practical and useful advantages. First, it teaches multitasking, and this comes out to be extremely useful in professional life. A second aspect is the capacity to manage groups of researchers: in several occasions, I had the impression that having had to deal with my children was extremely useful to understand how to react to quarrels among researchers (I know this is not politically correct, but this is the truth), and helped me in the management aspects of my professional life.



# CHIARA BATTISTINI

POSTDOC



Zentrum für Astronomie Heidelberg, Germany



2 children



## What do you enjoy the most about being a mother?

It's amazing to see how a little human discovers things and new abilities every day. How the smallest things that we find normal and maybe boring become almost magical in their eyes. But the thing that I enjoy the most is that at the end of the day, when you maybe are tired or sad, the little voice that says "mamma" and then runs to hug you is the most rewarding thing of all!

“The thing that I enjoy the most is that at the end of the day, when you maybe are tired or sad, the little voice that says "mamma" and then runs to hug you is the most rewarding thing of all!”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

I found it difficult to get back to the focus and to the commitment I had before the pregnancy. However, this could also be because working from home removed the interaction with colleagues (both scientific and personal) and this affected my working "mood". I guess I am a worker that enjoys company and a good laugh every now and then in front of a cup of coffee :)



## Has the pandemic impacted your career and family in the last couple of years?

For me, it's difficult to distinguish the influence of the pandemic and having a child in my career since my daughter was born just at the beginning of the pandemic. Anyway, I am not sure I can find positive aspects: having sometimes the daycare closed because of the pandemic put extra weight on balancing work and family (especially with a small child that cannot really play on his/her own), even if you could do home office. Besides this, having limited interaction with family and friends did not help in releasing this extra workload.



My child and me.

## Which positive effects has motherhood had on your career?

I got a bit more organized since now you have an extra person to take care of but you always have just 24 hours in a day :)



# CONNY CLARA AERTS

FULL PROFESSOR AND VICEDEAN COMMUNICATION & OUTREACH



Institute of Astronomy, KU Leuven, Belgium



2 children



## What do you enjoy the most about being a mother?

Being a proud mother of two children, each with a beautiful character, complementary talents to each other and to those of myself, and both of them living a life with a mindset based on inclusion and open-mindedness towards people of different interests, capabilities, culture, color, and religion.

“Regarding work-life balance: do it your own way, even though different from what others consider as the norm, and don't forget to smile.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Adapting to the daily life rhythm of children is hard enough to combine with any job, but within academia the (dominantly male) upper managers seldom have attention or respect for the lifestyles of mothers. The fact that I had to "defend" that lifestyle rather than being able to enjoy a trust-based attitude has been an unnecessary and ugly energy-drainer.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Yes, the pandemic impacted my career and family life. I encourage young mothers to keep ongoing - the current situation will end in the not too distant future. My advice is along with my suggestion in pre-covid times regarding work-life balance: do it your own way, even though different from what others consider as the norm, and don't forget to smile.



Celebrating with my daughter and son on the occasion of the 2012 Francqui Prize I received from the king of Belgium.

## Which positive effects has motherhood had on your career?

Being a mother has an immensely positive effect on your time management and capacity to multitask. It forces you to focus efficiently and to select what is important while omitting details. As a mother taking care of children, I got much more done in the same amount of time than in my pre-children career. This capacity of being efficient in what you do remains a highly beneficial skill throughout your entire career.



# ELENA GALLO

ASSOCIATE PROFESSOR OF ASTRONOMY



University of Michigan, USA



1 child



**What do you enjoy the most about being a mother?**

It grounds me. Becoming a mother has forced me to reassess my time and my priorities, and made me a more efficient scientist. I also enjoy experiencing my son's sense of wonder and experiencing things for the first time in life through his eyes.

“

Accept that there are only 24 hrs in a day, and that you need 6 at the very minimum to sleep [...]. Take good care of yourself.

”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Managing my expectations.



**Has the pandemic impacted your career and family in the last couple of years? - ADD**

Accept that there are only 24 hrs in a day, and that you need 6 at the very minimum, to sleep. This means if you have a toddler who's at home, you can't possibly be as productive as you wish. Take good care of yourself.



**Which positive effects has motherhood had on your career?**

It made me more efficient and better organized with deadlines (you can't afford to do everything last minute, because the chances that you'll have attended to a feverish toddler over those 24 hrs aren't negligible).



# ELISABETTA RIGLIACO

ASTRONOMER



Osservatorio Astronomico di Padova, Italy



2 children



## What do you enjoy the most about being a mother?

I most enjoy the look in my daughters' eyes when they see me. No one has ever looked at me as they do, and I guess no one I have ever looked at as I do with them. I also enjoy the chance they give to me to be a child again, to be enthusiastic about small things, and to spend a full afternoon just playing.

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

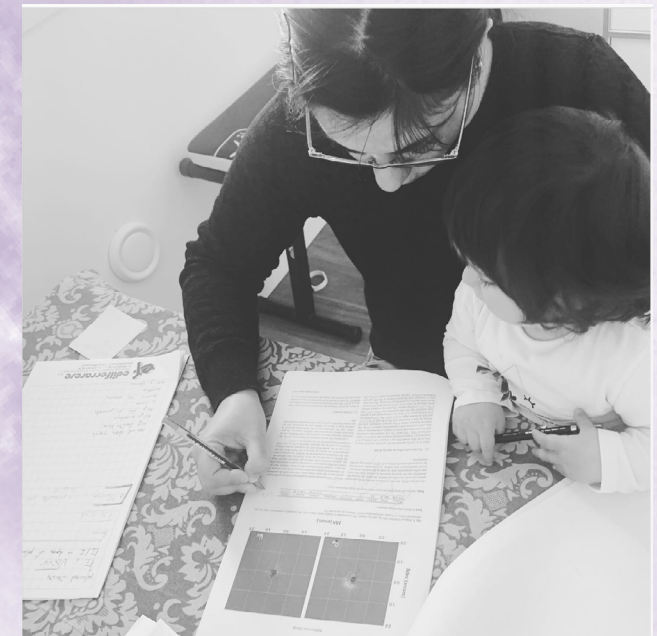
The biggest challenge when combining motherhood and academic life has been to adapt my life to a completely different rhythm in terms of switching on/off my brain depending on being on mother's duty or not. When I'm with my babies, I can't do anything else than be with them. Also, my brain has to be with them, and I have found it a little bit challenging to switch to the off mode. The other way around, switching the Astro-brain on as soon as you get to work, needs some training itself. I found it a little bit challenging to travel for work (especially after the second child). One of the major problems is that if you want a babysitter during a conference/meeting, you must pay yourself for it. It'd be nice if the baby-sitting were offered by the conference itself.



## Has the pandemic impacted your career and family in the last couple of years?

The pandemic has impacted me at the beginning. Finding the right balance between being a mother and being a worker when both duties occur in the same place has been a little bit difficult, especially when we were in lockdown. Now, with the kindergartens open it is much easier, also working from home is productive.

“I most enjoy the look in my daughters' eyes when they see me. No one has ever looked at me as they do.”



*Learning some Astro-skills from a little expert dreamer.*

## Which positive effects has motherhood had on your career?

I'm able to focus more on my working duties knowing that after a few hours I won't be able to do that anymore.



# ELISE EGRON

ASTRONOMER (PERMANENT POSITION)



INAF-Observatory of Cagliari, Italy



1 child

## What do you enjoy the most about being a mother?



Being a mother is the most incredible adventure in life. The love for my son, Leonardo (3 years old) is so incredible, it's the most beautiful emotion one can have. I love spending time with him, seeing his progress, listening to his reasoning, his way of seeing things, entering his fantasy world, playing with him, reading stories, and above all, listening to his stories. I learn so much with him, in particular, to appreciate the present moment and to enjoy every moment of life, even the simplest ones. I love making him happy, discovering new experiences, sharing my passions, seeing him go into raptures over very simple things, and above all, hearing him laugh. I love our moments of complicity, consoling him, moments of tenderness. Thanks to him, I see life with new eyes, new emotions. It's really wonderful.

“Becoming a mom has helped me enormously to adapt, accept new challenges, and take things as they are.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

It was very challenging at the very beginning to find the right balance between the new life as a mother and the full-time job as an astronomer. But within a few months, everything was easier by finding a good rhythm between family life, the nursery, my work, and that of my partner. You sometimes feel guilty for still having your mind at work when you're with your son, or conversely for having to cut short meetings or teamwork to run to the nursery. →



→ It's also a challenge to constantly have to adapt and change the schedule at the last moment when my son's sick. But it's easy to reorganize the priority and the family always comes first.

## Has the pandemic impacted your career and family in the last couple of years?

The covid-19 pandemic broke the rhythm we had before. In particular, during the lockdown, having a small child at home makes it very difficult to work from home. You have to find new schedules (like during the nap, or during the evening/night) otherwise you have a backlog of work to deal with, and it remains complicated to participate in meetings.

Then, when kindergarten reopened, as soon as your child has a little cold, you have to keep him at home. So for sure, I fell behind with my work. However, thanks to the pandemic, I spent more time with my son during his precious early years and I'm so glad about that.



Me and Leonardo at Chia beach, Sardinia, Italy in January 2022.

## Which positive effects has motherhood had on your career?

Being a mother helped me to find more easily the sense of responsibility, organization, better manage priorities at work, better manage stress. Becoming a mom has helped me enormously to adapt, accept new challenges, and take things as they are. I think I'm also more patient, more tolerant, more attentive to others, which is fundamental for teamwork.

Also, as an astronomer, many observations take place during the night. I'm not afraid to be tired since I was used to it during the first stages of Leonardo's life.



# EMANUELA POMPEI

STAFF ASTRONOMER



ESO (European Southern Observatory), Chile



2 children

What do you enjoy the most about being a mother?

It's like looking through a blurry time machine into the future: you know it will be there, but no definite shape.

“It's [being a mom] like looking through a blurry time machine into the future: you know it will be there, but no definite shape.”

What's been the biggest challenge you've experienced when combining motherhood and academic life?

Reconcile the shift work with children. For example, observatory shifts.



Has the pandemic impacted your career and family in the last couple of years?

Our children didn't want to study with their father, so the homeschooling fell exclusively on me, which forbade any research activity, leaving only the bare time to keep up with duties.



Advancing in sport...

Which positive effects has motherhood had on your career?

It reinforced my motivation to stay in science, to show that there is no need to let go of your passion because children came.



# EVANTHIA HATZIMINAOGLOU

DEPUTY HEAD OF THE ALMA REGIONAL CENTRE



European Southern Observatory (ESO), Germany



2 children



## What do you enjoy the most about being a mother?

To be given the chance to watch these two beautiful human beings grow, to be given the opportunity to contribute to their growth and evolution, and to learn from them about who they are and who I am.

“[With motherhood] I grew as a person beyond what I had ever imagined was possible.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

To make sure that I'm a good mother without neglecting my job and to maintain my high professional standards without neglecting my family.



## Has the pandemic impacted your career and family in the last couple of years?

Surprisingly, the impact of the pandemic was mostly positive. I got to spend a lot more time with my children, time that I saved from commuting and traveling. I got to be their teacher, their partner in their homemade science experiments, their travel companion on imaginary trips to their fantasy lands. On those difficult days when the lockdown became too much, we skipped homeschooling together to go for a walk around the lake. And while I long for the return of some normality, I will always look back at these moments fondly.



The solar system in our kitchen.

## Which positive effects has motherhood had on your career?

I discovered my true limits. I grew as a person beyond what I had ever imagined was possible. I became more patient. But perhaps equally important, I got involved in public outreach, thanks to the enthusiasm my children showed every time I answered one of their questions about the sun, the planets, and the Universe.



# FARZANA MERU

ASSISTANT PROFESSOR & DOROTHY HODGKIN FELLOW



University of Warwick, UK



2 children



**What do you enjoy the most about being a mother?**

The smiles, laughs, cuddles, and kisses from my children!

“I’m also learning what my limits are, and have had to learn to be realistic and say “no”.”

**What’s been the biggest challenge you’ve experienced when combining motherhood and academic life?**

The biggest challenge has been remaining visible in terms of publishing, attending conferences, and giving seminars. I traveled with my daughter to conferences and seminars since she was 3.5 months old. In many cases, I would be breastfeeding her while having science conversations, or even until just minutes before giving a talk. But there have also been times when I’ve had to decline invitations. The reduced time I have available to do my work also impacted my ability to get research done and to publish.



**Has the pandemic impacted your career and family in the last couple of years?**

Yes, absolutely! My husband and I had to homeschool our daughter, so getting work done was challenging at times—she was young and would need our support, more so in the first lockdown. When my daughter returned to school, since I was working from home, I was unable to work full days as I used to before the pandemic. My daughter's school starts at 8:55 am and finishes at 3:20 pm, so the amount of time in the day to get everything done is very limited. And trying to work in a focussed, uninterrupted way, for any length of time after she came home from school was next to impossible!



*This is my daughter's picture of a proto-planetary disc when she was 4.5 years old. She put a piece of card onto a fan with white tack. When we started the fan, the card started spinning. The felt-tip pens on the spinning card made circles which, together, were her drawing of a proto-planetary disc.*

**Which positive effects has motherhood had on your career?**

As a mum, I don't have the luxury of time. So I know I have to get my work done efficiently and super-quickly at times. I'm also learning what my limits are, and have had to learn to be realistic and say “no”. That is a little hard to do since, before becoming a mum, I would simply expand the amount of time that I spend on my work. Now I can't do that, but I do have a better work-life balance!



# FRANCESCA PRIMAS

FULL ASTRONOMER



European Southern Observatory (ESO), Germany



2 children

## What do you enjoy the most about being a mother?

I would say everything, as I never envisioned a life without children. For me, this would have meant living only half a life. I find it quite difficult to pin down what I have enjoyed the most of being a mother: the joy comes from small and big things, from a simple smile or a small hand holding tight to yours to witness how your children shape their personality and become adults. We're guiding them by passing along our know-how and unconditional support. Each age has its own challenges and problems, but also immense rewards. In the end, children are our legacy that lives on, hopefully improved.

“Each age has its own challenges and problems, but also immense rewards. In the end, children are our legacy that lives on, hopefully improved.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

For sure, it was not easy all the time, especially since in my case children arrived when I was at a rather demanding stage of my career with managerial responsibilities on top of my research career. In retrospect, I believe that my biggest challenge was to find a satisfactory balance between professional commitments and ambitions on one side and motherhood on the other, which did not make me feel like a bad astronomer or a bad mother. Very tricky, and even today I am not convinced to have fully succeeded in this, because this is not simply an organizational or time management issue, it involves your emotional well-being. →



→ I found some skills more useful than others, like resilience and complacency or self-assurance. Resilience was the easiest, as I rarely give up on things. The second one was a long and painful process, but necessary to value my re-defined (career/life) goals and continue to be proud of my achievements.

## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Of course, it has! Although my children are not so small, the lockdowns and home/online schooling clearly brought a major shift in our daily lives. Despite the technological proficiency that children develop almost naturally nowadays, extra support was needed, especially in helping them to build up their emotional and self-confidence skills to be in front of a camera for the entire day and cope with very creative teachers. Some days, I felt like a juggler.

To a young mother, I would recommend carefully selecting a few important projects to work on, those that may have the highest impact on their CV, in terms of visibility. And always select 1-2 fun projects on the side, to boost their self-esteem when one gets stuck on the big projects and to sell as extra activities. The most important thing is to continue to believe in oneself. I also want to believe that the community will recognize these as very special years and will take them into proper account when evaluating our performances. At least, this is what I would do!



A summer evening, many years ago, fishing on a lake in Wisconsin.

## Which positive effects has motherhood had on your career?

Many! It put things in the right perspective, giving them the right importance. I have never been the kind of researcher who lives fully immersed in his research, to the point of losing contact with reality. But surely enough, before becoming a mother, my passion for astronomy and for my research were major drivers. It was rewarding and the many evenings and weekends spent doing research were fun. Motherhood has changed this completely – apart from having to adjust to a different type of tiredness (more physical than mental), it taught me to become (very) selective and choose only those projects that I truly wish to contribute to. Admittedly, this was also a rather long process that improved with seniority!



# GAYANDHI DE SILVA

ASSOCIATE PROFESSOR



Macquarie University, Australia



2 children

## What do you enjoy the most about being a mother?

This is a very difficult question to answer. I couldn't imagine life as anyone else except the mother of my children. It is very much my primary identity.

The activities I enjoy are many and have changed and evolved over time. As babies, breastfeeding and playing peekaboo. As older children and growing into young adults see them play, achieve, understand, explore. It could be special things like going to events, birthday parties, and formal events, but also mundane activities like good conversations, cooking together and discussing current affairs.

Being a mother has also opened up and broadened my perspectives on situations. The values and priorities in life change as a consequence of motherhood. I believe I am a better person overall as a result of having children and having had the responsibility.

Fundamentally I think it is being able to give love and receive love in its various forms. That is unique. It is something that I would not have enjoyed if I didn't have my children.

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The overarching challenge is to balance time. Time is limited and many things are time critical on both sides. We know babies don't keep. Job contracts don't keep either. In a highly competitive academic world, we need to be involved at the right time, otherwise miss out on potential opportunities. In the same way, some of the best quality conversations happen at dinner time, especially during the teenage stage where children can be reclusive. Having the time to connect with your children is critical at every stage to continue a healthy relationship to get an insight into your child's emotions and well-being. →



→ The challenge was greater when we combine being away from home for conferences and a job that requires regular night shifts into the equation. When I found out I was expecting my second child while working at an observatory requiring approximately one week per month to be away from home and on a mountain top, it was nearly the end of my career. I consider myself very fortunate to have received the support from senior staff to draft an alternative contract with the administration that allowed me to complete my contract. However, it had to be fought for. It wasn't a given and certainly wasn't the preferred option of human resources.



As I had my first child during my PhD, both my children were born to an "observational astronomer". This collage shows their growth over a period of 10 years. I'm glad they still like to visit the Observentory!

“Being a mother has also made me unafraid to question some of the standard practices.”

## Which positive effects has motherhood had on your career?

Motherhood makes you think very hard about your priorities, and this has had a positive impact on me. I would say that I have become very efficient with my time. When I am planning my work, I don't stop and put something important to do "later", because I know "later" will never occur.

Being a mother has also made me unafraid to question some of the standard practices. One example was the options for remote observing. My place of work at the time did not support remote observing and there was no option but to travel to the mountain. Having the demands of children pushed me to raise the issue with my manager and senior staff. I was lucky to have their backing when it was pointed out that remote observing is just as efficient, possibly more. Now remote observing is conducted routinely, and having the setup established for my needs turned out to be beneficial for all at times of natural disasters and global pandemics when travel to the mountain was not possible!



# GEMMA BUSQUET

LECTURER PROFESSOR



Departament de Física Quàntica i Astrofísica, Universitat de Barcelona, Spain



2 children



**What do you enjoy the most about being a mother?**

The time with my children, playing with them, and seeing how they grow up. It's amazing the period when they start asking questions about everything. How easy it's for me to have always a smile and how they always amuse and surprise me.

“Being a mother opened and changed my previous vision of work...”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

The biggest challenge is to combine the work schedule, especially the teaching duties. However, sometimes traveling is also a challenge, and in particular, long stays abroad.



“...Now I'm more relaxed and work isn't on the top of my priorities.”



*With my children Lluç and Joana at the Black Lake (France).*

**Which positive effects has motherhood had on your career?**

Being a mother opened and changed my previous vision of work. Now I'm more relaxed and work isn't on the top of my priorities.



# ILARIA PASCUCCI

ASSOCIATE PROFESSOR



Lunar and Planetary Laboratory/The University of Arizona, USA



1 child

## What do you enjoy the most about being a mother?

The things I enjoyed most about being a mother have evolved with time. When my daughter was a toddler, I loved her awe and openness to new things and first experiences—everything is amazing to little kids! I also re-discovered the fun in playing and its importance in bonding. When my daughter started school, I loved reading her bedtime stories as well as her curious questions about the world, to which well... sometimes I didn't have an answer, but they made me think. Being a teenager is challenging: now I enjoy most watching her becoming an independent adult and whenever she feels like sharing her experiences at school and with friends.

“I feel that I gained a broader perspective and a deeper understanding of others, which have helped in my career.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

When I became a mother, I was still a postdoc, living in a foreign country with a short-term visa. I hadn't had a single day of maternity leave. My husband was in the same situation. We found it really challenging to balance work and family: we wanted to make sure that both of us could continue carrying out cutting-edge research that would lead to a long-term job in academia while being good parents. Our families in Europe were extremely supportive, especially in our first year as parents. I'm happy to see that more and more US Universities provide parental leave. I hope that support will extend to childcare, too—at least for those precious but challenging first years of a child's life.



## Has the pandemic impacted your career and family in the last couple of years?

I don't think the pandemic has significantly impacted my career, but has certainly increased my stress and anxiety, especially in the first year. We had to make sudden changes (remote school for our daughter, remote work for us, reducing to a minimum social interactions which are especially important for teenagers). We worried about whether we could even travel if any of our family members in Europe would get sick and needed help. One of the best decisions we made was to adopt Pepper, a cute black-and-white puppy. Pepper helped us to re-establish a daily routine, be a bit more outside and get to know better our neighbors, and, for all of us, to deal with the pandemic isolation. All these benefits offset the extra work needed to care for him. I highly recommend a pet to anyone who is struggling during the pandemic.



## Which positive effects has motherhood had on your career?

First of all, motherhood made me stronger, for instance, by giving a deeper purpose to my life. At the same time, it enhanced qualities that are important in any job, like being able to listen attentively and to pay attention to others. It forced me to become more flexible, often re-evaluating and re-arranging my priorities, and master multi-tasking. Overall, I feel that I gained a broader perspective and a deeper understanding of others, which have helped in my career.



# ILSE CLEEVES

ASSISTANT PROFESSOR



University of Virginia, USA



1 child



**What do you enjoy the most about being a mother?**

I became an astronomer because I love to learn and discover new things. A child is the most intense form of this experience, where everything is new and the world is full of wonder. As my child grows, I can't wait to share new experiences together.

“As my child grows, I can't wait to share new experiences together.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

One can minimize commitments, but it's impossible to have zero commitments while on maternity leave. Letters still have to be written. External deadlines cannot be moved. I wrote a letter from my hospital bed after my baby was born. Therefore, it's crucial to plan ahead (as much as possible).



**Has the pandemic impacted your career and family in the last couple of years?**

The pandemic has made childcare wildly unreliable, and historically, the burden falls on the mother. Brainstorm scenarios for disruptions in care ahead of time, both with your partner and your research group.



*Mom and dad's first outing into the world (a local cidery) when Baby Osa was 3 weeks old.*

**Which positive effects has motherhood had on your career?**

My ability to focus during working hours is so much better now since I know I won't often be able to squeeze extra time from my evenings.



# J. SERENA KIM

ASSOCIATE ASTRONOMER/ASSOCIATE RESEARCH PROFESSOR



Steward Observatory, University of Arizona, USA



1 child

## What do you enjoy the most about being a mother?

I enjoy spending time with my kid watching him do things happily. When my kid was a baby, just being with him, hugging, kissing, and playing with him, seeing him laughing and smiling made me happy and gave me strength. Even now that my kid is a teenager, I still enjoy hugging and giving and getting kisses from him. Hearing about and experiencing in his book-world or another world he creates is priceless. That is very special. I enjoy greatly hearing about his interests in all kinds of things, hearing about his thoughts and criticism about a lot of stuff, watching movies and even YouTube channels he likes to watch. Doing something

with my kid (like playing piano together, watching TV series together) gives me a lot of happiness. When I watch his musical performance, martial arts, and acting on stage from an audience seat, seeing him being proud of himself and happy, that makes me happy. What I enjoy the most as a mother is seeing my kid being happy, healthy. I love him having me around and allowing me to be in his world.

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The hardest time: whenever my kid was sick and when I was sick yet had to take care of my kid, especially around proposal and project deadlines, it was very hard. Teaching during the time either my kid or I were sick... was tough. Since my kid had to go to daycare like other astronomers' kids, he got sick a lot, sometimes seriously. My kid got sick then when he recovered I got the germ and got sick. It was like a never-ending getting-sick during the first 2-3 years since he was born. Only my husband was around with all our family members overseas, but often he was away for a long time. That was hard. Not being able to sleep for the first few years caused me a chronic sleep problem, which is still giving me hard time. During the time my kid had a very demanding schedule for his school and extracurricular work, it was hard to deal with the schedule (though I really enjoyed all his activities and music and arts)... →



→ It caused me to sleep less to catch up with work; I think. But the hardest time has been during the teenage years during this pandemic. It was definitely the hardest time except when we had to run to ER when my kid was a baby and a toddler.

## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Yes. It has impacted my career and family both. My kid has been impacted the most. The poor teenager had the toughest time ever in his life. It's been the toughest time of my life so far. All kids have difficult times, though the area of difficulty would be different. I think every family has different kinds of difficulties. I think we all need to be a bit more considerate and a bit more patient. We had to experience a furlough year, had medical problems with aging parents, more medical spending, and we had more work to do with teaching and committee work. During the pandemic, while my child needed to stay home and attend classes from home for 1.5 years, and needed more time and care, we had more work to do for the teaching, caring for students, and committee work for the university.

I'm not sure if having a teenage kid qualifies to be a "senior" mother. For everyone who has a younger kid, I'd like to tell them: "You're not alone. Hang in there, talk with someone about your difficulties, get any help from family and friends whenever you can".

Find something to release your stress, like getting a hobby. Get some time for yourself, even if it's just an hour a day. I'm trying to do that, but it's hard. What I found helpful for kids' health is that if your kid seems to be distressed, find a therapist or counselor. I see that many family friends around us seem to have gotten a lot of help from that.



Me and my kid at the GMT booth from the winter AAS meeting 2011.

## Which positive effects has motherhood had on your career?

I have a different point of view perhaps than pre-child time. I think motherhood allowed me to develop a lot wider and deeper understanding of people. It helped me to understand and care for students. Being a mother of my child makes me brave as well. I appreciate my kid teaching me about the different worlds he's living in, and this makes me a better person, I think.



# JIHANE MOULTAKA

RESEARCHER



IRAP, OMP, Université de Toulouse III Paul-Sabatier, France



1 child

## What do you enjoy the most about being a mother?

Being pregnant and then a mom is the most fulfilling experience I've ever had in my life. I wish it to all women and especially to scientists and to women who work hard for their careers.

I think the most beautiful thing one can achieve is to give life to another human being and to accompany him towards his autonomy and throughout his discovery of the world. Bring him the love he needs and receive his own.

“My son always gave me courage and energy when I was going through moments of doubt...”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

My son's entire childhood was a difficult time for me, but my case is special. When my son was born, my relationship with his father had deteriorated. It finally ended in a divorce when my son was three years old. I must admit that my career took a back seat. I had to take care of a 3-year-old child with no family support or relatives because my job was in a new city where I didn't know anybody. So it was quite difficult to combine my professional life with my life as a single mother. The different projects at work were very demanding and, at the same time, I put a lot of pressure on myself at work because I had to show in some way that I deserved my job.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

My son was 13 years old when the pandemic started. He was already at that age very independent. During the lockdown, he had organized his days without my help and so I was quite free with my schedule. I had a great time with him during this period.

It's difficult to give advice to young mothers because children are very different from each other. It depends a lot on their personality but I think the most important thing is to talk to them a lot, explain things to them and trust them. It makes them more responsible and more independent. And that's beneficial for everybody.

“...and gave me joy during the moments of sadness when I wanted to let go of everything.”

## Which positive effects has motherhood had on your career?

I was 3 months pregnant when I took the entrance exam for an astrophysics research organization in France and when I got the job. The audition for the competition is a very stressful exercise where you alternate between moments of doubt and confidence. Like all candidates, I took this exam several years in a row. That year, I was very confident because I wasn't alone. My baby, who gave me a lot of courage, accompanied me. And I got the job.

Today my son is 15 years old and his presence still brings me a lot because, throughout these years, he always gave me courage and energy when I was going through moments of doubt and gave me joy during the moments of sadness when I wanted to let go of everything.

On another note, thanks to my son, I understand my students better in all respects and I think this helps me to be more effective as a teacher. I think that in general, being a mother is very beneficial for teaching activities and, in particular, for teaching science at a university level.



This photograph was taken during a calotype workshop I attended with my son.



# JUDITH ANN IRWIN

PROFESSOR



Queen's University, Kingston, Ontario, Canada



2 children



## What do you enjoy the most about being a mother?

As the children grow and learn, I learn from them. The happiest memories I have of their childhood were when they just played happily together with no expectations or demands. Alex and Irene are adults with their own lives now and a wealth of experience behind them. They're now my friends.

“Whether your mind is off into the stars and galaxies, the children keep you grounded.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Lack of time, first, and lack of money secondly. If I had more of the latter, I could have bought more of the former.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

The picture that I'm including with this response was taken over 30 years ago, so I haven't been with children at home during the pandemic. The only advice I could offer, if it's at all possible for the young women, is to hire as much help as you can afford to work on the house, so that you can focus on work when you need to and focus on children when you want to.



Me with my son Alex and my daughter Irene. This picture was taken in May 1991 in Ottawa, Canada. Alex is almost 3 and Irene is 5 months.

## Which positive effects has motherhood had on your career?

I've been blessed with two wonderful children who never really gave me any trouble as children. When children speak to you, the exchange that you have is very... normal... Whether your mind is off into the stars and galaxies, the children keep you grounded. So, yes, two eyes on the sky, and two feet on the ground—this is a good combination.



# LAURA PENNY

PROFESSOR



College of Charleston, USA



3 children



**What do you enjoy the most about being a mother?**

I like that all three of my children are very different and have lots of interests. They're also extremely amusing. Being a mother is a constant while being an astronomer is temporal.

“Forgive yourself as much as possible.  
Accept that success or perfection  
just doesn't always happen.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Scheduling has always been the big issue. How to fit in parenting and being an academic. What do you do when your child is too sick to go to daycare/school but you have classes/meetings? Impossible situations constantly.



**If you're a senior mother, what would you recommend to young mothers who are struggling during the COVID-19 pandemic?**

I'm a senior mother—my children are 22, 20, and 16. Advice is impossible to give to someone else who you don't know all the circumstances of their life. Forgive yourself as much as possible. Accept that success or perfection just doesn't always happen. If everyone is alive at the end of the day, that's a good thing.



*Back in 2011, we're about to set out on a trip across the country (mostly camping). Lots of National Parks and visits with friends and family.*

**Which positive effects has motherhood had on your career?**

I'm going to be honest, they didn't advance my career—at all. But I don't give a damn. I guess they made me more approachable to women in the liberal arts fields. Somehow having children made me more like them, possibly.



# M. ALESSANDRA PAPA

RESEARCH SCIENTIST/PROFESSOR



Max Planck Institute for Gravitational Physics and Hannover and Leibniz University, Hannover, Germany



2 children

## What do you enjoy the most about being a mother?

Watching them develop into the interesting people they're now, recognizing parts of me in them, yet seeing clearly that they are their own unique selves.

“Parenting[...]shifts the focus dramatically on someone else [...] Experiencing that perspective has helped me enormously navigate complex interactions at work.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Balancing time.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Since my kids are older, it was nice to spend time together, all working from home during the lock-down times of the COVID-19 pandemic. Work-wise, my research could proceed nearly unaffected through remote meetings. To young mothers, I recommend demanding a fair (50-50) contribution to child-care activities and household/family chores from their partners. And I even more strongly urge wanna-be mothers to talk about this topic before embarking on having kids and to internalize the fact they have a right to the same amount of time for themselves and their work as their spouse, and they should not be afraid of making that non-negotiable.



*In the summer of 2021, here I was with my two kids, as the jet-lagged family was driving to catch a ferry near Boston.*

## Which positive effects has motherhood had on your career?

1) Especially with very young kids, time is so precious that I learned to recognize the essential at work and ruthlessly focus on it 2) parenting, like other caregiving activity, shifts the focus dramatically on someone else: one is not the center of one's universe anymore. Experiencing that perspective has helped me enormously navigate complex interactions at work.



# MADDALENA REGGIANI

FWO POSTDOCTORAL FELLOW



Institute of Astronomy, KU Leuven, Belgium



5 children



## What do you enjoy the most about being a mother?

I enjoy watching my kids grow, in every little step they take every day. I like to see how their curiosity towards reality increases with time, and I like to spend time with them sharing as much as I can my passions (astronomy, baking and cooking, music, and sports) and their interests.

“Motherhood taught me to be always ready for the unexpected, and that the unexpected is very often what gives you the most joy.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Facing the difficulties of the academic life (temporary jobs, frequent international moves) with kids has not always been easy. For sure, forcing them to change country and leave their friends and school behind has been one of the biggest.



## Has the pandemic impacted your career and family in the last couple of years?

I already had four kids (under 8 years old) when the pandemic started and my little fifth one arrived during pandemic time. Working at home, with everyone there too (each one with different needs and demands) has not been straightforward, and I had the feeling research was going on, while I was left behind. It helped me a lot to coordinate working shifts and child caring with my husband, so that each of us had a moment during the day in which we could really focus on our work.



Me with my children, Giacomo, Lucia, Marta, Pietro, and Veronica.

## Which positive effects has motherhood had on your career?

Since I became a mother, I had to learn to be extremely organized, to make the most out of the time I have, both if with my family and for work. Motherhood also taught me to be always ready for the unexpected, and that the unexpected is very often what gives you the most joy.



# MARÍA CLAUDIA RAMÍREZ TANNUS

POSTDOC



Max Planck Institute for Astronomy, Germany



1 child



**What do you enjoy the most about being a mother?**

Seeing my daughter being curious about everything around her and learning new things every day.

“ I enjoy seeing my daughter being curious about everything around her. ”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

My biggest challenge has been to reserve a mental space only for work when I know that there are several things that I have to take care of at home and for my daughter.



**Has the pandemic impacted your career and family in the last couple of years?**

My daughter was born during the pandemic. The flexibility of working from home for me and my partner was great for the pregnancy and the first months of her life. Even though I was the one who took leave, my partner could be there to spend time with our daughter and take care of some tasks at home during the day. The hardest part is that because of the pandemic, kids are sent home from daycare very often, which means that very often we have to interrupt our work for a couple of days to take care of our daughter at home.



*My daughter Elena and myself.*

**Which positive effects has motherhood had on your career?**

Being a mother has given me a different perspective on life. It's easier now for me to not let my work define me, but to be always proud to be Elena's mother.



# MARIA DIAZ TRIGO

ASTRONOMER



ESO, Germany



3 children

What do you enjoy the most about being a mother?

Seeing my children grow and develop their personalities.

Skills that a mother develops almost to perfection are timing management, ...

What's been the biggest challenge you've experienced when combining motherhood and academic life?

The frequent traveling (pre-COVID times), which implied a lot of logistics for the family, and the difficulty for continuous academic achievements (especially when children are small).



“...patience, stress mitigation, conflict resolution, and setting priorities.”



Which positive effects has motherhood had on your career?

I definitely have learned a lot of skills that have helped me at work. Skills that a mother develops almost to perfection are timing management, patience, stress mitigation, conflict resolution, and setting priorities. However, this doesn't necessarily foster mothers' careers, unfortunately.



# MARIA LUGARO

SENIOR RESEARCHER



Konkoly Observatory, Hungary



4 children



**What do you enjoy the most about being a mother?**

To be in love with all my children and to be challenged by them into new experiences and ideas.

“[I enjoy] to be challenged by my children into new experiences and ideas.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

After the twins were born, it was very hard to get back to publishing, travelling, and being part of the scientific community. Luckily, my husband was looking after all the children at least as much as myself, so I could get back into my career and continue to be a scientist.



**Has the pandemic impacted your career and family in the last couple of years?**

We had to spend a lot of time homeschooling and working from home, so the house was full, and I had to work on my yoga mat on the floor. But I loved it being together and having lunch together every day.



*My four children and I on our 2020 summer holiday in Italy.*

**Which positive effects has motherhood had on your career?**

I believe that out of working hours, it's crucial to avoid work and to think about work for mental health and work-life balance. The brain needs to rest to keep on working at full efficiency and to avoid burnout. It's not easy to switch off from work, but children help a lot to do that! When I'm together with my children, for example, on the weekend, I want to give them my full attention, and they demand that too. Being a mother has really helped me to switch off.

Scientists should maintain objectivity and this can be done better by not becoming involved in a too personal way in our work. To have other identities outside of work, such as being a mother, also really helps with that challenge.

A mother often learns to organize time in the most efficient way possible, and this helps also to be more effective in the actions we take. If I have to choose a collaborator or employ someone, I find it an advantage for the candidate to be a mother because I know this role requires a lot of organizing skills, mental creativity, and flexibility.



# MARIJKE HAVERKORN

PROFESSOR



Radboud University, The Netherlands



2 children



**What do you enjoy the most about being a mother?**

I love the trust, love, and ease of togetherness of a family. I enjoy seeing the kids grow and develop: when they were very small the joy and surprise when they keep learning new things, and now that they're a little older how they are exploring the world, developing their own personalities, and gaining control over their own lives.

“

I love the trust, love, and ease of togetherness of a family.

”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Time management. In principle, both an academic career and guiding children to adulthood are full-time jobs. So it's an always-changing balance of priorities: what's the most important?, where can I delegate, cut corners, or adapt? Living in a country where it's still not very common nor universally accepted for a mother to work full time, it's a challenge to not feel inadequate in both.



**Has the pandemic impacted your career and family in the last couple of years?**

Yes. Homeschooling was the worst, but luckily hasn't happened often or for long periods of time in my country. Time management, planning, and organization have become even more of a challenge because the pandemic causes more work, effort, and time spent at both work and home.



**Which positive effects has motherhood had on your career?**

I don't think it had any—possibly learning by necessity how to be more efficient. But mostly I feel I have to make choices in my career to be there for my family: fewer projects to take on, less time to spend, less travel. However, these were conscious choices and I don't regret that I made them and still have to make them.



# MARILYN LATOUR

POSTDOC



Georg-August-Universität Göttingen, Germany



1 child

## What do you enjoy the most about being a mother?

Looking at my son discovering the world brings back to me a lot of great childhood memories. I like to try and see things as he does, discovering, experiencing everything with a fresh mind. How simple things for adults are so interesting for him, like a wheel that turns, pouring water, the patterns on the laminate flooring, and on sidewalks. How a rainy day isn't a bad thing because he has so much fun splashing around in puddles. It brings back to me this open-minded perspective we had as children and it also forces me to be more aware and in the present moment. I know that as he will grow up, he will keep bringing this sense of wonder to me as he develops his abilities and discovers the world.

“It brings back to me this open-minded perspective we had as children and it also forces me to be more aware and in the present moment.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

I'm still at the beginning of this combination, but the tiredness and the impression of lacking time are quite challenging. I would like to perform well as a mother, as a scientist, as a housekeeper, etc. But I have to remind myself that there is a limit to what someone can do and that this limit is also different for everybody.



## Has the pandemic impacted your career and family in the last couple of years?

My son was born at the beginning of the pandemic, all that I know is being an expat family under these circumstances. It is already difficult to be a mother in a foreign country, but I felt even more isolated due to the fact that social interactions were limited. The help and support we could have from our families and friends were also limited due to travel restrictions and I didn't have a chance to visit my family during my maternity leave.



## Which positive effects has motherhood had on your career?

I can't answer this yet, but I'm looking forward to reading the answers of the senior mothers. I hope that I can combine motherhood and career in a positive way in the coming years.



# MARYVONNE GERIN

SENIOR RESEARCHER (DIRECTRICE DE RECHERCHE)



Observatoire de Paris, France



4 children



## What do you enjoy the most about being a mother?

Seeing the children grow, develop their personality, and enjoy being together with or without their parents.

“They [children] provide the right counterbalance to focusing only on work.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Organizing travels for conferences or for observing runs has been a challenge as this meant to have help at home.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Given my seniority, the pandemic hasn't impacted my career much. My children have been impacted to various degrees. It's difficult to give recommendations to young mothers. From my side, it's good to keep time for yourself, including research, and separate time for the family. There's no need to worry about missed deadlines as new opportunities will come and good ideas for research last long.



*The shadows of me and my children.*

## Which positive effects has motherhood had on your career?

I believe the most positive effects have been to keep a sense of the most important topics in my life: research is important, but you cannot spend all your time on it. It's good to have other topics of interest. As children are asking for immediate attention, they provide the right counterbalance to focusing only on work. A second positive way is the need for a good organization of the time.



# MAYRA OSORIO

ASTROPHYSICIST



Instituto de Astrofísica de Andalucía (CSIC), Spain



1 child



What do you enjoy the most about being a mother?

I enjoy it the most when I give my daughter physics or maths class while I am preparing our dinner, because my daughter always asks me intelligent questions which go much further than what I am actually explaining to her.

“Motherhood and my career go hand in hand. If either of these two important factors in my life were to be missing I would definitely feel empty.”

What's been the biggest challenge you've experienced when combining motherhood and academic life?

It was a hard time when my daughter was born and above all her first years. Combining my job along with taking care of her was exhausting at times because my relatives live in another country and could not help me.



Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

It was even quite difficult to combine my profession and take care of my family before the pandemic. However, because of the current situation, we no longer go out for meals and don't have a home help which makes my life harder, really. I can't give any advice to younger mothers than me, as I can't find a way to make life much easier. It might help to share tasks, but it doesn't always work.



Me and my daughter having a relaxing day.

Which positive effects has motherhood had on your career?

I wouldn't feel fulfilled if I hadn't become a mother. I believe that both motherhood and my career go hand in hand. If either of these two important factors in my life were to be missing, I would definitely feel empty.



# MELINDA SOARES-FURTADO

POSTDOCTORAL FELLOW



UW-Madison, USA



2 children



What do you enjoy the most about being a mother?

Sharing my life with two creative, delightful beings that never cease to surprise me.

“

Being a parent has made me incredibly courageous to go after my goals.

”

What's been the biggest challenge you've experienced when combining motherhood and academic life?

The challenges of gear switching between the pace/focus required for my work and the pace/focus required to attune and connect with my family.

Not nearly enough time to enjoy the quiet moments. The stress and uncertainty of a career that demands frequent relocation for early-career academics.



Has the pandemic impacted your career and family in the last couple of years?

Yes, it's been incredibly challenging to navigate this next chapter of my professional career during a pandemic. For example, I had two children in virtual schooling when I was writing my dissertation. As you can imagine, that was really stressful. Creating a virtual community (the Astrono-Mom Conversation Series) and connecting with other early-career academic mothers has been really helpful. It's nice to know that this experience is shared and that we can support one another through this challenging time.



My two children, Natascha and Damiano, and me.

Which positive effects has motherhood had on your career?

As a mother, I feel it's critical that I maintain a healthy mindset, as I am leading my family by example. Being a parent has made me incredibly courageous to go after my goals, as I need to provide security for my family.



# MELISSA NESS

ASSISTANT PROFESSOR



Columbia University, USA



2 children

## What do you enjoy the most about being a mother?

I really enjoy the experience, so let me instead answer this in terms of the biggest surprise of being a mother, which is how much I'm learning from my children, and how much they teach me. This is the most enjoyable thing that I wasn't anticipating. It's also remarkable to see how children so quickly grow and change, and interact with and make sense of the world. They inspire me to be a better teacher to answer their tough questions.

“They inspire me to be a better teacher to answer their tough questions.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Going to conferences when the kids were little was challenging, and I subsequently attended very few of them. Sometimes, organizers could offer some support to bring the children, or help with childcare, and that meant that I could attend and take part. It was also really great to feel supported and included in this way.



## Has the pandemic impacted your career and family in the last couple of years?

In short, yes, but I hesitate to make any recommendations as I am vastly unqualified to do so, and this time has been experienced differently for everyone. That said, I would be pleased to read recommendations from others.



A portrait of me drawn by my 4-year-old.

## Which positive effects has motherhood had on your career?

I think now more before I do, and I am inspired by my children to continually work to be a better teacher, to lead with empathy, and to try to hold the perspective of the students at the forefront. My children enable me to see daily, with many examples, how important it is to provide evidence and reason to support my claims and explanations. That may sound obvious, but in practical terms, it often requires some thought (at least for me!).



# MEREDITH HUGHES

ASSOCIATE PROFESSOR OF ASTRONOMY



Wesleyan University, USA



2 children



## What do you enjoy the most about being a mother?

My kids! I love watching them grow and learn. I think that as you reach middle age, it's easy to just let time pass while you go through the rhythms of life, but kids are constantly changing. They keep the fresh challenges and joys coming at a breakneck pace.

“As both a parent and a professor, you are constantly thinking about how to get through to other people, how to help them grow into the best version of themselves.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Oh, it's trite, but the biggest challenge is always feeling like there's not enough time and energy for me to be the best mom AND professor that I can possibly be. I constantly feel like I'm falling short at one or the other (or both). Sometimes in my head, I write my "invisible CV" of opportunities I haven't pursued because of my kids: talks I've turned down, conferences I haven't gone to, proposals I haven't written, collaborations I've let languish, students I could have helped more. And sometimes I worry that my kids really would be better off if I were home with them full-time (though I think the pandemic has provided a definitive answer to that question: NOPE!).



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

I don't think there's anybody in the world who would answer "no" to that first question! My kids were 1 and 4 at the start of the pandemic. Our daycare shut down for several months, and eventually, we hired a nanny to watch our kids at while we worked at home for much of that first year (and as privileged as we were to be in that situation, it was not equivalent to full-time out-of-the-house childcare). I had fortunately just gotten tenure before the pandemic hit, but I have so much sympathy for my pre-tenure colleagues whose lives and careers have been upended by the pandemic. I don't have any advice for them, but I have advice for those making tenure and hiring decisions: please recognize that the pandemic has exacerbated and compounded the inequities that already existed for parents (especially mothers) of young children, and that the ripple effects are going to last for many years. The pandemic is still not "over" for parents of young children as I'm writing this in 2022, between the constant childcare disruptions of the past two years and lack of vaccines for under-5's. If your junior faculty parents are accomplishing anything right now, they are amazing and you should value them.



Me reading with Soren and Leif, ages 5 and 2.

## Which positive effects has motherhood had on your career?

Lots! I think that when you become a parent, you necessarily reach maximum efficiency in your work, and have to think clearly about which professional opportunities are highest-impact and most meaningful to you. So it provides a certain amount of professional clarity. It's also made me a better manager of people. Reading the book "Siblings Without Rivalry" unexpectedly provided me with a great framework to use when my students or TAs are tussling over resources or attention. As both a parent and a professor, you are constantly thinking about how to get through to other people, how to help them grow into the best version of themselves, how to encourage them in their strengths while sensitively helping them shore up their weaknesses. And now that my students are suddenly closer in age to my kids than to me (when did that happen?!), I see them differently. I appreciate and am amazed at everything that they had to learn to get from where my kids are to where they are now.



# MIHO N. ISHIGAKI

ASSISTANT PROFESSOR



NAOJ, Tokyo, Japan



1 child



**What do you enjoy the most about being a mother?**

From the moment of her birth, I enjoy seeing my child grow and develop day by day. More recently, I love talking with my child, who discovers what her parents overlook and tells us how she was impressed by all these things.

“I love talking with my child, who discovers what her parents overlook.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

I had to look for a permanent academic position while taking care of my small child. I remember I had to practice my job interview/writing application documents while putting my child to sleep at the same time.



**Has the pandemic impacted your career and family in the last couple of years?**

When the daycare had been closed because of the pandemic, it had been difficult to work efficiently from home. After the daycare opened, I found myself rather comfortable working from home since, without commute time, I can work longer on weekdays. Without business trips, I have more time to be with my family. However, I miss in-person meetings for my research work.



*My daughter and me watching cherry blossoms in full bloom.*

**Which positive effects has motherhood had on your career?**

On weekdays, I tend to work efficiently to pick up my child from daycare on time. On weekends, I try to dedicate my time to being with my child and family, which has been good for my mental/physical health.



# MYRIAM BENISTY

STAFF ASTRONOMER



IPAG Grenoble, France



2 children



**What do you enjoy the most about being a mother?**

The immense love I feel. Discovering the world again through my children's eyes. Guiding them. And feeling grateful for having them every day.

“It [motherhood] made me understand that there's more than one way to be a good scientist.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Maternity leaves have brought a lot of insecurity and the feeling that I might never overcome the challenges due to two long periods away from work. Then being away for babies for conferences was very difficult (and at the same time, there was some pressure to accept talks to compensate for maternity leave). But the biggest challenge by far was to be an academic during the many lockdowns of the COVID pandemic—that's the next question :-)



**Has the pandemic impacted your career and family in the last couple of years?**

The pandemic has been having a huge impact on my career and my family. We've been in many successive lockdowns with young kids to homeschool and I had to dramatically reduce my work hours. I've been able to follow only a few projects from far away, without direct involvement, making me lose a lot of past expertise, and unable to gain new expertise. While the family has always been a clear priority, having to work from home has made it difficult for my kids too (request for "quiet" hours, stressed parents, etc.).



*Cut and paste with love by Ella.*

**Which positive effects has motherhood had on your career?**

It made me understand that there's more than one way to be a good scientist. It also made it very clear that life's so much bigger than work, and that what really matters is to be happy, and also at work. This meant trying to make strong decisions to ensure a certain level of peace and joy at work.



# NADIA BLAGORODNOVA

VENI POSTDOCTORAL FELLOW



Radboud University, The Netherlands



2 children



## What do you enjoy the most about being a mother?

One of the things I enjoy the most is seeing the progress of my two sons. Small steps that are barely noticeable every day represent a huge leap after a week, a month, or a year. It's fascinating for me to see how fast they evolve with their skills, their personality, and their perception of the world.

“It's fascinating for me to see how fast they evolve with their skills, their personality, and their perception of the world.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

There have been multiple challenges, such as job applications during pregnancy and maternity leave, late evening telecons with people in other parts of the world, constant lack of sleep, or having missed the calls for applications for telescope time when being on my leave. However, I think the biggest one's been the lack of support for childcare. On the one hand, due to my job in academia, my husband and I live in a different country than our respective families...→



→ On the other hand, in the Netherlands, the paid maternity leave only covered 3 months after the birth of each child, which represented a challenge for my choice to breastfeed. Moreover, the cost of childcare is very high even with the government subsidies, which means that it's not feasible for us to have 5 days of childcare per week.

## Has the pandemic impacted your career and family in the last couple of years?

The lockdowns and closure of childcare facilities have certainly represented a challenge to my work/life balance. One of the things that I still find difficult to manage is guilt. If I work from home and my children are there too, I feel guilty for not spending time with them. However, when I give them my attention, I also feel guilty, because I feel I'm not advancing with my work.



Books are always fun! We like to read every day in Russian, Catalan, and English.

Nevertheless, the pandemic had also a positive side. Going virtual made it easier for me to give talks and attend meetings, conferences, and workshops that I would have missed otherwise due to not being able to travel. Also, working from home has simplified breastfeeding.

## Which positive effects has motherhood had on your career?

I became more organized with my planning and more focused during working hours. With children around, I know I generally won't have the chance to finish a task if I leave it to the last minute, so I learned to be more efficient with the time that I have.



# NATALIE WEBB

ASTRONOMER (FULL PROFESSOR)



Institut de Recherche en Astrophysique et Planétologie, Toulouse, France



2 children



## What do you enjoy the most about being a mother?

Being a mother is fantastic and stressful all at the same time! I love sharing activities with my children, helping them discover new things, and reflecting on their points of view. Having children helps you focus on the important things in life.

“Having children helps you focus on the important things in life.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Combining motherhood and academic life is complicated. It's difficult to organize and reconcile work trips and working long hours makes it challenging, but not impossible, to find time to spend with the children. However, the children are only young for a fraction of your career and I feel that it is worth giving up some projects whilst the children are still young in order to be able to enjoy more of their childhood. The biggest challenge is having waited to be settled in a permanent position before starting a family and therefore not being able to complete the family we wanted to have.



## Has the pandemic impacted your career and family in the last couple of years?

The pandemic has impacted life in general. The first lockdown was particularly challenging as the children needed to be accompanied in their work at the same time that I was expected to be working and teaching, all at the same time that they needed to be fed and amused. It was not unusual for me to go to bed at 3 am to be up and ready for 8 am the next day! However, it also allowed the kids to gain new experiences. They became more technologically savvy (zoom, teams, Skype, email, scanning work correctly, uploading it to a platform (for the eldest), etc), as well as gaining more experience in preparing food and finding innovative ways to amuse oneself (without technology) and do exercise.



An excellent candidate for an intermediate-mass black hole that we discovered the week I returned to work after my first maternity leave (when I was unsure I really wanted to go back to work as I wanted to stay with my daughter full-time).

## Which positive effects has motherhood had on your career?

Being a mother has made me more efficient. It also gives me insight into the younger generation, essential for interactions with my students.



# NATALY OSPINA ESCOBAR

RESEARCHER



Universidad Autónoma de Madrid, Spain



2 children



What do you enjoy the most about being a mother?

I enjoy seeing my children grow up, seeing how they change according to the different stages they go through; it is extremely beautiful sharing different experiences with them.

“It [motherhood] has helped me to empathize, to normalize that personal life affects all of us in the career and that's ok.”

What's been the biggest challenge you've experienced when combining motherhood and academic life?

Definitely, the biggest challenge I've experienced has been becoming a mother during the PhD stage. In some countries/ environments, the idea of being a mother during the research formation stage isn't well seen. It's believed that it's impossible to make motherhood compatible with what a research career implies. Fortunately, this is starting to change little by little, but in my case, it was challenging. Gratefully, I always had the support of my partner, who always encouraged me to continue and fight for what I wanted.



Has the pandemic impacted your career and family in the last couple of years?

I think the pandemic has affected us all in different ways. In my family, childcare and household chores have always been shared equally, and this has allowed us to be less affected by the situation during the pandemic.



With my children Laia and Sergio in Battaglia Terme, Italy, 2021.

Which positive effects has motherhood had on your career?

It's helped me to empathize, to normalize that personal life affects all of us in the career and that's ok. And mainly, it's made me understand that it's necessary to work to improve the work-family balance.



# NATHALIE DEGENAAR

ASSISTANT PROFESSOR



University of Amsterdam, The Netherlands



1 child

## What do you enjoy the most about being a mother?

Becoming a mom made me experience a completely new form of love that doesn't compare to anything else. The absolute best thing in the world is hearing my daughter laugh, which she does a lot! It keeps amazing me how she has attention and appreciation for little things that I overlook in the rush of everyday life. I also very much enjoy her carelessness, limitless fantasy, and naughtiness, which sometimes brings me back to fun things from my own childhood.

“I never regretted focusing on my daughter at the expense of keeping work waiting, whereas I have regretted doing it the other way around.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

When I became a mom I was in the postdoctoral phase of my career, which meant moving institutes/countries every few years. As my husband didn't always have a job in the same city or even country, I was a part-time single mom for a few years. Without close family nearby, this was difficult in the early years (during that time when sleeping through the night seems like a utopia and little ones often pick up illnesses). Luckily the flexibility of academia allowed me to manage all this and I think it contributed to the very strong bond that I have with my daughter.



## Has the pandemic impacted your career and family in the last couple of years?

A consequence of the COVID-19 pandemic was that my daughter's after-school care by grandparents dropped away for a long time, and of course, we did a lot of homeschooling. Due to the increased caring responsibilities, my work productivity took quite a hit. On the positive side, it has been quite a unique experience to see what and how my daughter learns in school.

Trying to juggle work with family care has not been easy and often left me feeling short on both ends. I recently realized that I never regretted focusing on my daughter at the expense of keeping work waiting, whereas I have regretted doing it the other way around. There's always time for work, but kids grow up fast.



Me and my daughter Elisa in Amsterdam (summer 2020).

## Which positive effects has motherhood had on your career?

Motherhood gave me a strong sense of perspective, causing me to worry a bit less about work-related issues. Furthermore, as I want to be with my family at night, my daytime working hours are more constrained than they used to; this has forced me to be more efficient, which has been a positive development.



# OLGA ZAKHOZHAY

SENIOR RESEARCHER



Main Astronomical Observatory of the National Academy of Sciences of Ukraine



1 child

## What do you enjoy the most about being a mother?

The most joy is to have someone so special in life. I always thought that the new meaning in life that comes together with the child is to care about the child and her/his needs more than your own. But in reality, once you have a child, your own value increases dramatically. Now you value your job more since it's also a source to support the child's needs. Now I want to be better, to be clever and prettier, to be a good example for my daughter.

“The most joy is to have someone so special in life.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

So far, the most difficult for me is this combination by itself, the lack of the time for parenting and the lack of time for science. In Ukraine, a normal time to start kindergarten is 2 years old, which would be just a huge break for scientific research. That's why I try to do at least some science every time my daughter sleeps. Which obviously is too little time for research. And, without proper rest, it's hard to be a good mother.



## Has the pandemic impacted your career and family in the last couple of years?

Indeed, for me, the pandemic was rather a positive thing. My pregnancy went on a similar path as a pandemic: it started in November 2019, but I knew about it only by the New Year of 2020. My last trip to La Silla observatory was in March 2020, right before the lockdown. I was obviously terrified of getting infected all the time. I was missing a normal scientific life a lot, but with the pandemic, I knew that actually, no one had it either. Like the entire world was sharing the maternity leave with me.



Me & Sofia in September 2021

## Which positive effects has motherhood had on your career?

Probably the fact that it gives an understanding of the value of the time. I always had an impression that women feel time constraints better than men (since our biological clock is more strict). But with a small child, time for anything else is so so limited that its value increases even more.



# PAOLA ANDREANI

FACULTY CHAIR AND HEAD OF THE OFFICE FOR SCIENCE



European Southern Observatory (ESO), Germany



3 children



**What do you enjoy the most about being a mother?**

Rising human beings and its rewarding and enriching experience.

“Rising human beings and its rewarding and enriching experience.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

The prejudice that being a mother isn't compatible with a rewarding and interesting career. The stressful organization of daily life, the guilt feeling of being away from the children.



**Has the pandemic impacted your career and family in the last couple of years?**

Not much because my children are independent and grown-ups.



*At a Japanese temple during one of my scientific visits to colleagues in Japan.*

**Which positive effects has motherhood had on your career?**

My managerial skills have improved enormously.



# PAOLA CASELLI

DIRECTOR



Center for Astrochemical Studies, Max Planck Institute for Extraterrestrial Physics, Germany



1 child



## What do you enjoy the most about being a mother?

When my daughter was a little child, the greatest joy was to rediscover the world together. I loved to show her new things, new places and pretend I was also seeing them for the first time. Now that she is 21 and studying abroad, the greatest joy is when we are together, talk, and have fun.

“When you love somebody with all your heart, you're happy inside and this is what gives you strength even in dark times.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The greatest challenge has been to make sure my daughter was a happy child, despite the fact that I separated from her dad when she was only 5 years old and I took her with me to the United States first, then to the UK (when she was 7) and finally to Germany (when she was 14). I tried my best while working hard, as my job is the other love of my life.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

The pandemic hit me when my daughter had already left for her university studies. We've been lucky that we decided to go to Australia together at the end of 2019 to celebrate the new year. We had an amazing time there, but then the pandemic started soon after and we both have been stuck (as everybody else), with long periods without seeing each other. Things haven't been easy, but I definitely can't complain. I know that many young mothers and fathers have been struggling a lot and my little contribution to this was to support those in my group in these conditions. My recommendation to young mothers is to take your kids outside as much as possible, openly talk to your supervisor about your struggles, and definitely don't feel bad if you have not been able to do as much as you wanted to. Rather, think that you've been so strong to continue your work despite all the struggles. Impressive!



*This is me and my daughter in New York during one of our long weekends together at the time I was visiting Harvard Smithsonian Center for Astrophysics, teaching Star and Planet Formation to graduate students while continuing my research. Great times!*

## Which positive effects has motherhood had on your career?

When you love somebody with all your heart, you're happy inside and this is what gives you strength even in dark times. That's why motherhood has always been positive for my career, despite the struggles of being a single mom for many years. I should thank my daughter for being such a wonderful and supportive child!



# PAOLA PINILLA

GROUP LEADER / ASSOCIATE PROFESSOR



MPIA, Germany/UCL (MSSL), UK



2 children

## What do you enjoy the most about being a mother?

I truly enjoy seeing them growing and developing their own personalities, and also the infinite desire that I have to see them fulfilling their dreams. I really like how they laugh about simple things and how they inspire me to give my best. In the everyday routine, I love the magical hugs that I get after coming back from work and how they help me remember what really matters in life.

“Being a mother has increased my patience and in general my openness to other’s opinions, which are important skills when supervising students.”

## What’s been the biggest challenge you’ve experienced when combining motherhood and academic life?

From the very beginning, there’ve been different challenges. When I was pregnant with my first child, I had to travel a lot for interviews for faculty positions. This was exhausting, also because I wasn’t sure what was the best option (to hide or show that I was pregnant). Seven months after my first child was born, I started to travel again for work while breastfeeding, which was also very tiring. Productivity at work during the first year(s) of my children’s lives has been challenging because of being sleep-deprived. And more generally, it is energy-draining the constant feeling that the day doesn’t have enough hours for being an astronomer and a mother simultaneously. →



→ However, I’ve learned that astronomy can always wait, while my children can’t. Finally, since I became a mother, I found it more difficult to be far from my family in Colombia. All these challenges that we face aren’t barriers thanks to the infinite help of my partner, who has always supported my career.

## Has the pandemic impacted your career and family in the last couple of years?

Yes, of course. The first 6 months of the pandemic felt like a big wave of responsibilities when taking care of a toddler at home while trying to get some work done - in particular, making sure that the students, PhDs, and postdocs I was supervising were also doing well during the pandemic. Over time, the impact became a positive thing for different reasons. First, my second child was born during the pandemic and it’s been great to have the opportunity to virtually attend meetings, conferences, and give talks. Overall, the pandemic freed me from the pressure of traveling. Second, I’ve found a new lifestyle to achieve a better work-life balance, which includes simple lunches at home with my partner during a couple of workdays, allowing us to have quiet time to talk, which are precious moments when the daily routine is so hectic.



Me with Elara (3 yrs and half) and Maya (8 months) during a cold and sunny day in Heidelberg.

## Which positive effects has motherhood had on your career?

Definitely! Knowing that I have very limited time to work every day helps me to be organized, pragmatic, and prioritize what’s important but also what I enjoy the most at work. Being a mother has increased my patience and, in general, my openness to others’ opinions, which are important skills when supervising students. And in general, motherhood made me appreciate much more working parents, in particular the ones in academia.



# PAULA JOFRE PFEIL

ASSOCIATE PROFESSOR



Astronomy Nucleus, Diego Portales University, Chile



2 children



## What do you enjoy the most about being a mother?

I enjoy the simplicity of kids, and to witness how life is about the details that kids are so good at identifying. I love to see how they grow, how a baby turns into a person. It's fascinating. I also like that they force me to enjoy the simple things in life, like cooking something -just pasta- or collecting stones and shells on the beach. It's impossible to get bored in the world of kids.

“It's good to have the kids to cheer you up when career doesn't go that well, and it is good to have the beauty of astronomy when motherhood doesn't go that well.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Find the compromise of time expected to dedicate to each. I am in a constant struggle that I want to dedicate more time to spend with my kids but don't manage to fit all my work in less than normal full-time working hours. It is very exhausting to feel that there's never enough time, and develop therefore a kind of chronic lack of sleep.



## Has the pandemic impacted your career and family in the last couple of years?

I had my first child during my PhD while I was far away from my family or any help. I knew the challenge of having little time to do both and to live day by day in chaos with the baby's needs and my PhD development at stake. I learnt to apply an internal machine switch and just focus on the essentials, and kind of forget myself for some (longish) periods of time. The fact that after my time as a student and young mother, I've been able to enjoy a more relaxed period with my kids and career gave me hope the pandemic was going to be another hard period that will, at some point, pass. I feel I applied that same survival mode in the pandemic. I'm not sure if behaving like a machine is so good for the partner because I really had very little time or energy left for him, but he also understands sometimes we must focus on surviving and he embraced at the moment as I did, trusting that it'll pass. Life is long to experience both hard and easy moments. The pandemic is a hard moment, but it is getting easier now.



laptop + their school stuff around. It was a heavy bike, and sometimes it was very exhausting, but now I remember how lucky it was to live in that beautiful town feeling safe. I was a member of King's College (the building behind) and was terribly proud to have been selected as a research associate. We used to go with the kids to have English breakfast at King's College on the weekends. There was a flipper in the student bar which they loved. I liked to meet there other members with their families having brunch too. Feeling accepted (with my family) in that amazing place made me develop one of my craziest ideas of phylogenetic trees with stars, which resulted in a paper after several long evenings with other King's members and coffee and endless brainstormings everywhere in Cambridge. That idea has boosted my career significantly.

This is a picture I shared with a Chilean Newspaper when I was doing a postdoc in Cambridge about "Mujeres globalizadas". I used to take my 2 kids on my bike + my

## Which positive effects has motherhood had on your career?

Life's not all about a career. A career is too unpredictable and frustrating to have only that. It's good to have the kids to cheer you up when your career doesn't go that well, and it is good to have the beauty of astronomy when motherhood doesn't go that well.



# REBECA GARCIA LOPEZ

ASSISTANT PROFESSOR



University College Dublin, Ireland



1 child



What do you enjoy the most about being a mother?

It is fun, their unconditional love.

“...I would have my son again, and I wouldn't have sacrificed my personal life as much if I could go back.”

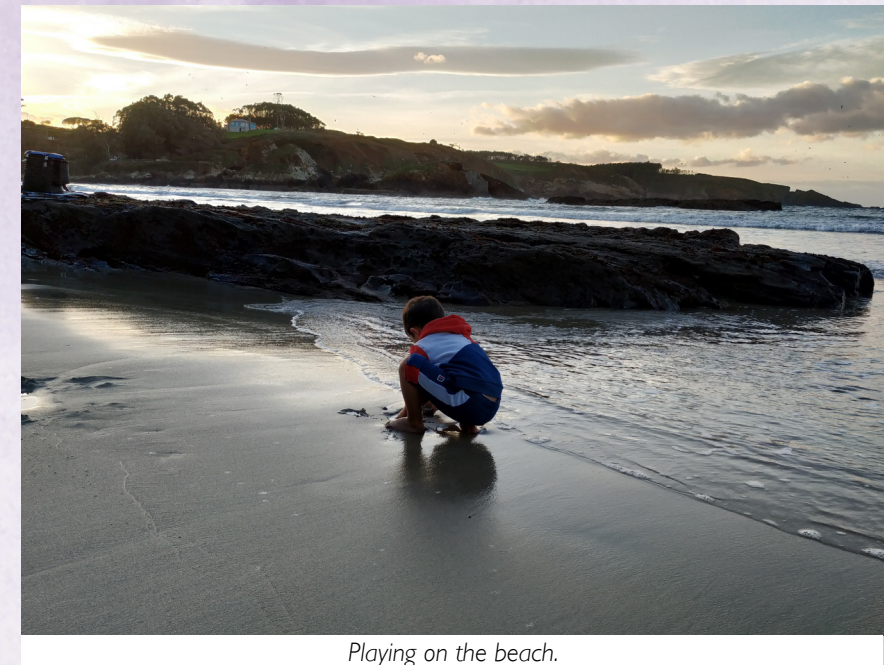
What's been the biggest challenge you've experienced when combining motherhood and academic life?

Lack of time to perform my research. I can't keep working 12 hours/day, I feel I'm left behind, and always behind schedule.



Has the pandemic impacted your career and family in the last couple of years?

Yes, I had more work load because of university teaching requirements, with much less time. This has affected negatively my research, as I had much less time available due to caring and teaching responsibilities.



Playing on the beach.

Which positive effects has motherhood had on your career?

None. But I would have my son again, and I wouldn't have sacrificed my personal life as much if I could go back.



# REBECCA NEALON

FELLOW/ASSISTANT PROFESSOR



Warwick, UK



1 child



## What do you enjoy the most about being a mother?

My favorite thing as a mother is watching my baby learn and grow. She's still less than a year old, so every day holds some new achievement, experience or touch. My baby's curious and fearless, and I love having a fearless baby.

“My career is not just about research, it's also about supporting and teaching others.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Time management is a big thing, but even when one can manage their time it's a problem of just not having enough of it. It's simply not possible to work the way I used to, get the same amount of rest and give my baby the time she deserves. That means that some things get cut and the first one to go is my professional productivity. I wish there was more understanding of this and that I didn't have to keep using my baby as an "excuse" for why I haven't gotten something done sooner or with better quality.



*My daughter and I when she was one month old. I missed a conference, and I was meant to present on this day. Instead, we slept, fed and went for a walk. It was the first day I really learned to let work things "just go" because my family was more important.*

## Which positive effects has motherhood had on your career?

My career is not just about research, it's also about supporting and teaching others. I think parenthood has made me a better supervisor and collaborator because I'm more able to be understanding, considerate, and to remember that there is more to life than work. Having finite time has also made me prioritize the most important work and learn to lean more on my collaborators.



# REBECCA RINGUETTE

SCIENTIFIC SOFTWARE DEVELOPER



NASA's Goddard Space Flight Center, USA



3 children



**What do you enjoy the most about being a mother?**

Mentoring and loving on my own piece of the next generation. Sweet kisses from those little faces help keep me going when it's rough, and the sass from the older one makes life more entertaining.

“ Sweet kisses from those little faces help keep me going when it's rough, and the sass from the older one makes life more entertaining. ”

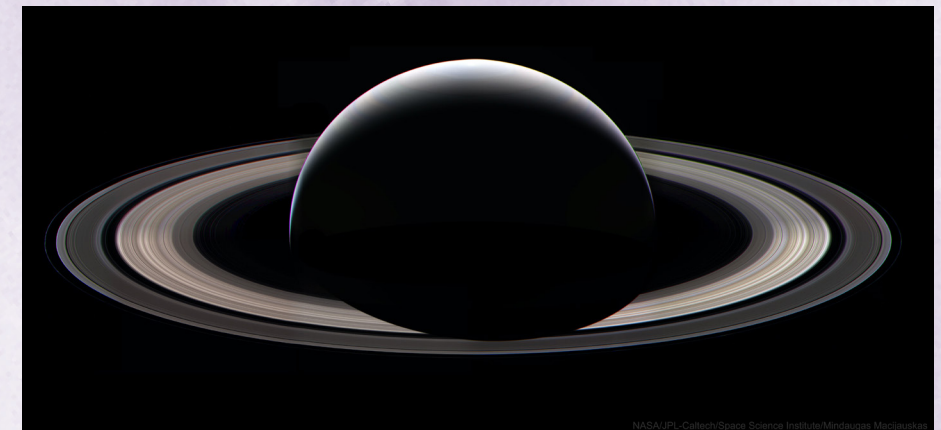
**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Having children and a career demands a much more careful balance of work and family life than otherwise. I've found that while there are select times where work must take precedence, ensuring that these times are few and far between results in a better mental state not only for myself, but for all the members of my family. There are times I've had to "stand my ground" on this, particularly when the perceived urgency was not real, but my family and mental state are worth it.



**Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?**

One positive impact is the ability to work from home, but it is quite difficult with younger children when schools aren't open. We had to shift our job structures to share the load better. For those who are struggling, I'll loosely quote the Cars movie (because I haven't watched an adult movie in a long time), "Find a groove that works for you, drive it in deep, and hope it sticks. Go!"



*This portrait of Saturn's rings is my favorite astronomical picture because it reminds me to look at whatever problem I am dealing with from multiple perspectives. It is those other perspectives that typically lead to wisdom and a final solution.*

**Which positive effects has motherhood had on your career?**

Being a mother reminds me that others have their bad days too and to be compassionate instead of simply reacting.



# SANDRA JEFFERS

GROUP LEADER



MPS, Goettingen, Germany



1 child



What do you enjoy the most about being a mother?

It's very exciting to watch my child learn, explore and understand the world.

“It's very exciting to watch my child learn, explore and understand the world.”

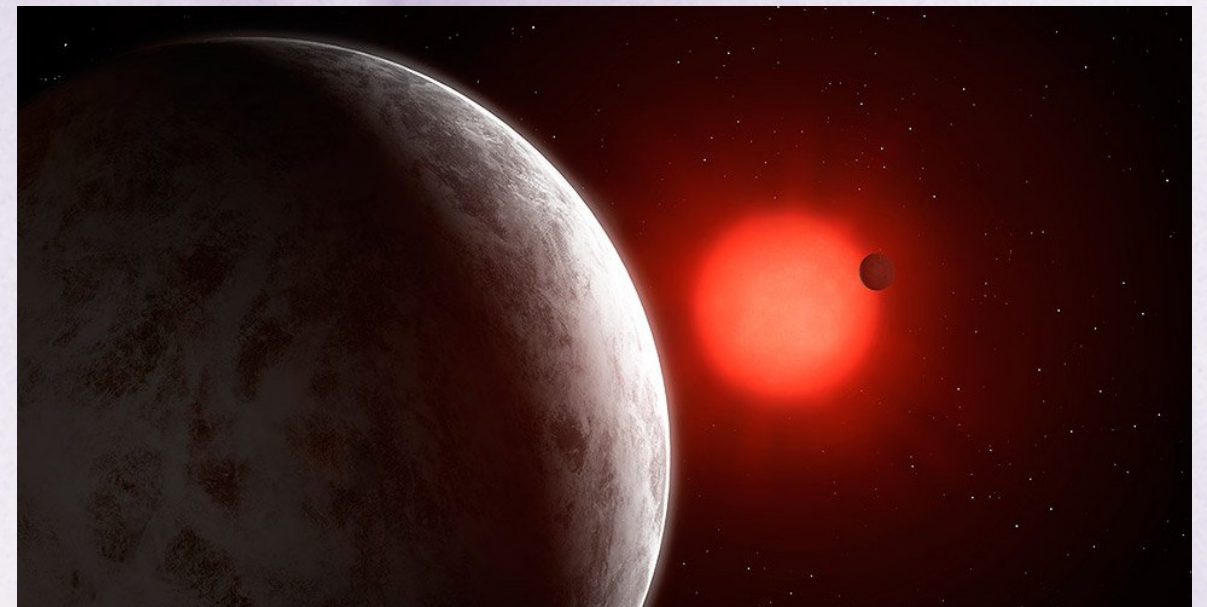
What's been the biggest challenge you've experienced when combining motherhood and academic life?

When my previous employer had very outdated gender equality values.



Has the pandemic impacted your career and family in the last couple of years?

Yes, it's been even harder to juggle work and family life!



Artist's impression of the multiplanetary system of super-Earths orbiting nearby the red dwarf Gliese 887. Credit: Mark Garlick

Which positive effects has motherhood had on your career?

None.



# SARAH CASURA

PHD STUDENT



Universität Hamburg, Germany



1 child

## What do you enjoy the most about being a mother?

It gives meaning to life in a much deeper sense than anything else. I love spending time with my son, running around outdoors, seeing him grow up and discover the world, playing with him, cuddling, making him laugh and giggle. It's also strengthened the relationship with my husband, who is the best dad for my son I could have ever wished for. We look forward to extending our little happy family!

“My resilience towards setbacks or “bad days” at work has increased a lot simply because there are more important things to life...”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The legal situation in Germany and the support from my university are actually very good, so I can't really complain. The biggest challenge is overcoming my own (unrealistic) expectations and constant feelings of guilt ("I'm not spending enough time with my son" and "He's growing so fast and time will be over way too quick" vs. "I should be working harder", "I'm not putting enough effort into my PhD", "I'm too slow" - when there's still only 24 hours a day). →

→ And there's of course the worry about the future, how to reconcile a typical career in academia (moving to different countries for a contract of just a year or two, constant job insecurity, expectations to travel to conferences, work evenings and weekends, etc.) with my family life. I wish it were possible to do science just like a "normal" job!

## Has the pandemic impacted your career and family in the last couple of years?

For us, the timing of the pandemic was actually perfect and we had more advantages than disadvantages from it. For example, it meant that I was able to participate in many meetings, workshops, and conferences from my sofa during late pregnancy when otherwise I'd have been much more isolated—and I wasn't even missing out on any hobbies, since they were all canceled, too! Also, my husband suddenly was allowed (or rather: asked) to work from home, which was previously impossible at his company. This meant he was able to support me much more during late pregnancy and the first months after birth (when I was on parental leave) and got to spend much more time with his son than anticipated. It also meant that the transition from my parental leave to his parental leave (after half a year) was very smooth, since we were basically just exchanging rooms in our flat, while large fractions of the daily routines remained the same. Nurseries then re-opened just in time for us, too.



Looking at the stars (Jupiter is just about visible as a faint little dot in the picture)—he absolutely loves it!

## Which positive effects has motherhood had on your career?

It puts many things into perspective. My resilience towards setbacks or “bad days” at work has increased a lot simply because there are more important things to life...



# SILVIA BONOLI

TENURE TRACK



Donostia International Physics Center, Spain



2 children

## What do you enjoy the most about being a mother?

On top of their hugs, what I probably enjoy the most of my kids is sharing with them new experiences. My partner is also a researcher and, since our first daughter was born, we moved several times. It has always been logistically challenging to move with one, and then two, small kids, but it always felt like an adventure for all of us. We always had the feeling that the landscape could change, but behind the doors, it was always us, two astronomers with two kids, happy to enjoy each other and eager to meet new people and explore the world.

“It helped to reach out and share these feelings with other astronomers and mums. I realized that most of us were going through similar experiences, and that gave me strength.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The combination of motherhood and academic life has been quite a roller coaster. The first years of my kids have been particularly hard. Difficulties in finding a daycare, lack of sleep, all sorts of viruses sneaking into the house before a trip or a deadline... And a constant sense of guilt: guilty when working for not being with the kids, guilty when with the kids for not being a fully dedicated scientist.

Many times I came close to throwing in the towel... →



→ It helped to reach out and share these feelings with other astronomers and mums. I realized that most of us were going through similar experiences, and that gave me strength.

But what gave me strength the most was the thought that I had a big responsibility: I had the chance to increase the statistics of the number of women in science and I had the chance to show my daughter and other girls in our community that, yes, science IS a girl thing.

So, after quite some struggle, I'm still an astronomer, but a very feminist one! I very much hope that women will eventually be able to enjoy science and motherhood with no guilt, in the way that most makes them happy, whichever that is.



*"Here I am with my kids in early March 2020, the day before a conference in the Netherlands, enjoying a full Dutch experience! I had to take my kids to conferences with me before, but this was the first time I had no help. The COVID pandemic was starting and no nannies could be found. They behaved amazingly well! A few days later, back in Spain, the lock-down started. For a long time, we hang on to the memory of this last trip!"*

## Which positive effects has motherhood had on your career?

Combining motherhood and academia has been a challenge, but I am also continuously learning from it. I'm learning to be more efficient and to prioritize. I'm learning patience and how to listen better.

I'm learning that managing a group is not too different from managing a family. You need passion, tolerance, and respect.



# SILVIA SPEZZANO

INDEPENDENT RESEARCH GROUP LEADER



Max-Planck-Institute for Extraterrestrial Physics, Germany



2 children



**What do you enjoy the most about being a mother?**

Everything! It's an ever-changing happiness. I like to be infected with their laughter and curiosity, and I love growing up with them.

“ Make your partner a “partner” and share duties and responsibilities equally. ”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Child support is hard to find and very expensive in the area where I live (Munich, Germany). During my first pregnancy, I was judged for wanting to go back to work before my child turned 1-year-old, which was tough. During my second pregnancy, I was more self-confident, and the judgement did not affect me.



**Has the pandemic impacted your career and family in the last couple of years?**

No, it hasn't. However, my boss is very supportive of me and she respects my private and family time/needs. This has been crucial. My suggestion is to invest in yourselves, do not compare childcare costs with your income, and take a loan if necessary, not only for childcare but also for household work. Childcare costs will go down anyway (well, at least in Germany), and your income will go up only if you invest in yourself. If you are not a single mother, make your partner a “partner” and share duties and responsibilities equally.



My children and me.

**Which positive effects has motherhood had on your career?**

I'm more focused and efficient, and overall happier.



# SILVIA TORRES

PROFESSOR



UNAM, Mexico



2 children



**What do you enjoy the most about being a mother?**

The births of my two children have been the most important events in my life. I enjoy their company, achievements, support, and even their critical comments.

“Reserve every day a few moments for yourselves among the multiple chores that must be taken care of.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

During their childhood, it was difficult for me to find equilibrium between both roles; I felt that I owed more effort to fulfill each one.



**Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the covid-19 pandemic?**

The pandemic has distanced me from my colleagues, and more significantly, from my students.

As a senior, my suggestion to young mothers is to reserve every day a few moments for yourselves among the multiple chores that must be taken care of.



Arizona 1975—Silvia and Manuel with children Mariana and Antonio.

**Which positive effects has motherhood had on your career?**

My children have given me happiness, which has impacted favorably my career.



# STEFI ALISON BAUM

PROFESSOR



University of Manitoba, Canada



4 children

## What do you enjoy the most about being a mother?

I just love babies and kids and the curiosity and natural joy they bring to the world. Now my kids are adults and I love interacting with them as a family. Intellectually, we learn from each other continually and challenge each other to learn new things and think in new ways, read new books, and take on new challenges.

“Motherhood kept me grounded, taught me how to use my time well, filled my life with ideas, creativity, and gave me perspectives that enabled me to work well with others.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Physical and mental exhaustion. Raising kids is not for the faint of heart, and as parents, we are impacted in many ways by the challenges our kids face. During my career, I had many roles where I was responsible for the management/leadership of many people, and when you're devoting large amounts of emotional and other energies to your children (and of course, you aren't sharing these challenges with your colleagues) it was difficult to hold it all together. I also determined early on that traveling for work when my kids were growing up/young was just not worth it for me or the family. Thus, I didn't do any work-related travel for about 12 years in the middle of my career, accepting that would negatively impact my career...→



→ I'm glad I made that decision. All in all, the biggest challenge is balancing, deciding where your priorities lie, and not over committing.

## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the covid-19 pandemic?

I'm a senior mother as my kids are now adults living on their own and dispersed around the US. I decided early on not to let COVID prevent me from traveling and visiting my kids and my brother and his young second family. I served as Dean of Science for the first 1.5 years of the COVID situation and I saw firsthand how families were impacted, particularly young mothers trying to juggle having kids at home, working from home, and feeling the stress of the unending situation. What I'd recommend is to put everything in perspective and go easy on yourself. And recognize that all situations have positive aspects and make sure you make the best of those. Extra time at home with your kids, a lack of disruption for travel, etc are positives that one can try to take advantage of. Since my adult kids could work from anywhere during the pandemic, I ended up getting to spend lots of extra time with them and could help support them in new and unique ways. I ended up helping my young nieces by zoom teaching them when they were stuck at home at the start of the pandemic. Use the ability to connect online to see how your extended family can support you. Just some ideas. As always, "by indirection, find direction". There are unique opportunities in every situation.



Family Baum O'Dea on a family trip to Ireland circa 2005.

## Which positive effects has motherhood had on your career?

Motherhood kept me grounded, taught me how to use my time well, filled my life with ideas, creativity, and gave me perspectives that enabled me to work well with others. It taught me to see the positive and to work through challenges. It taught me what mattered. And it brightened my outlook and that positive outlook is something I could bring to my career. Each of my kids is of course unique, and seeing the myriad ways they approach their worlds and thinking broadened my own thinking. And since we share the books we are reading, and I'm an avid reader, the breadth of my reading and thinking was expanded in ways that enabled me to be a better astrophysicist, collaborator, professor, mentor, Dean, and to expand into new areas beyond astrophysics through their examples and as my interests evolved. Being a mother provided me with much-needed balance and expanded my worldview in ways I never anticipated.



# STÉPHANIE CAZAUX

ASSOCIATE PROFESSOR



TU Delft, The Netherlands



2 children



**What do you enjoy the most about being a mother?**

I enjoy sharing my children's world and looking at them grow. I enjoy seeing which personality they're getting with age, and which kind of grown-up they're becoming. I also enjoy seeing myself grow as a mother.

“It [motherhood] allowed me to spend time on important things in life and place my work not always in the first place.”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

Having small children and sharing my time between work and daycare and all the logistics. Preparing grants applications during the naps of the children was a huge challenge (you have a bit of time but never know how long and when it ends). Going to a conference took me one week of organization for a few days there (organizing my friends picking up kids, etc..).



**Has the pandemic impacted your career and family in the last couple of years?**

My children were older during the pandemic. So the impact was mostly on making homeschooling. I made a rhythm at home so that everyone would wake up and start the day and do their homework. And in parallel, I did my own work. This was exhausting.



Playing the shark!

**Which positive effects has motherhood had on your career?**

It allowed me to spend time on important things in life and place my work not always in the first place. This was challenging and sometimes I felt like I was falling both as a mother and as a scientist.



# TERESA GARCÍA DÍAZ

RESEARCHER



IA-UNAM, Mexico



1 child

## What do you enjoy the most about being a mother?

I enjoy every moment and second that I spend with my son. Seeing his smile, hearing his voice, and seeing his eyes make me feel happy. I love playing with him. I'm proud of each one of his achievements, goals, and challenges. His desire to learn and discover new things is what I love about him. Being a mother is the best feeling I've ever had in my life.

“Being a mother is the best feeling I've ever had in my life.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The biggest challenge has been dividing the time between working and taking care of my son. Also, doing both jobs in the best way in order to have excellent results at work, a good education, and quality time with my son. When he was born, I wanted to leave my job to dedicate myself to taking care of him completely. But my husband convinced me that my work is one of my greatest achievements, which helps me feel happy. Therefore, the decision was to distribute my time in a more organized way, to be efficient and practical, thus achieving a balance between work and taking care of my son. Every day is a new challenge and goal to meet both at home and at the office. However, every day I feel more confident that I'm doing things well in my two roles.



## Has the pandemic impacted your career and family in the last couple of years?

Definitely. Being 100% at home, it's very difficult to divide office work with homework. During the pandemic, I'm almost always between my computer, cleaning the house, cooking, and thinking about the science that I should develop. It's a great challenge. Hiring someone to help us with things at home is complicated because we always have the doubt if the person will get infected at some point and bring the virus home. Therefore, we prefer to do things by ourselves.



## Which positive effects has motherhood had on your career?

I've learned to be more efficient both at work and at home, more responsible, and take advantage of every moment I have. I try to give my son quality time through play, reading, classes, and sports. Now I'm closer to my relatives who live far away using different means of communication. This contingency has taught us to share with our loved ones through distance. I'm also more empathetic and generous with people. My son needs me and I have to be there for him whenever he needs me, so I take more care of my health. I'm his pillar, his strength, and he's my heart.



# TERESITA SUAREZ NOGUEZ

POSTGRADUATE RESEARCH ASSOCIATE



University of Edinburgh, Scotland



1 child

## What do you enjoy the most about being a mother?

I'm very honored that this tiny human being chose me as his mum. I love that I've been able to be there for him and witness the milestones in his development. Particularly, my breastfeeding journey has been amazing, and I've been able to enjoy it quite a lot. I'm very grateful to have a community to support us, which has been crucial in this journey. Despite finding parenting exhausting, it actually makes me happy on a daily basis. I just want to do all my best for him, so he can succeed in life. That sense of purpose is very fulfilling.

“I just want to do all my best, for him, so he can succeed in life. That sense of purpose is very fulfilling.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

They seem to be NOT compatible at the stage I've been with a baby under 1-year-old. Babies demand your full time and attention, leaving little space for anything else.



## Has the pandemic impacted your career and family in the last couple of years?

The pandemic has allowed me to spend more time with my family, which has been great. As I stayed working from home as much as I could, it's done my return to work from maternity leave much smoother and more friendly.



Me and Leo at the Tenayuca pyramid in Mexico City.

## Which positive effects has motherhood had on your career?

It's definitely changed my perspective and my priorities. It's also forced me to be more efficient at work and be better with my time management.



# TESS JAFFE

HEASARC CHIEF ARCHIVE SCIENTIST



NASA Goddard Space Flight Center, USA



2 children



## What do you enjoy the most about being a mother?

Watching kids' brains develop is both fascinating and fun.

“Even in the 2010s, many of the mothers I knew were doing far more than half of the parenting, with a few very engaged fathers to buck the trend and make the rest look bad.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Being away from my kids while traveling for work is always hard. I've been very lucky. I chose my partner well, and he's had the job flexibility that allowed me to travel whenever I needed to. But that doesn't make it easy to leave kids, especially when they are little and breastfeeding. I pumped breast milk in the strangest places. There weren't lactation rooms at the time, and even if there were, I wouldn't have used them. Some women need the quiet, so I'm glad they now exist. But I felt a need to help the world accept that breastfeeding and pumping are normal things to see. I pumped in hallways and restaurants and on the airplane next to commuting businessmen who were smart enough not to say a word. So I didn't let it stop me, but I really don't miss that pump, asking people at hotel receptions to put my breastmilk in their fridge (imagine the looks!), or trying to connect with very young kids over a video call.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

The virtual school was an absolute nightmare. Anybody with kids in virtual school faced the question: work, school, or sanity, choose two. On the plus side, the fact that meetings have been all virtual has been in some ways wonderful. The meetings suffer, of course, but it's much easier on the family. I'd rather be at a conference in my PJs at 2 am than try to squeeze a video call with my kids into competing schedules. My only advice is too late for those who are already parents, and that is to choose your partner wisely. Even in the 2010s, many of the mothers I knew were doing far more than half of the parenting, with a few very engaged fathers to buck the trend and make the rest look bad. (Pro tip: For some of us, parenting skills are super sexy.) So that's for the potential parents reading this.



Pretending to my kids that I know anything about telescopes in addition to computers. Daytime observation of Venus during an institute open house.

## Which positive effects has motherhood had on your career?

Putting my career in perspective. It's a job I love, but it's just a job and not my whole life.



# THERESA WIEGERT

POSTDOC



Instituto de Astrofísica de Andalucía, Spain



1 child

## What do you enjoy the most about being a mother?

Life's about learning and progression, in my opinion. The experiences pertaining to being a mother are the most learning intense situations I've been through. The only thing that comes remotely close is probably producing and defending my PhD thesis. The responsibilities, though hard at times, aren't lasting forever and are shaping me as a person. I enjoy the most seeing the world in a new light through my son's eyes and am amazed at how he learns and progresses.



“I wouldn't change being a mother for the world, but I'd have loved for academia to be more understanding and accommodating towards family life.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

Not to know how one thing affects another. I made the choice to let my husband's career take precedence during the first years of our child's life. I tried to stay current by keeping working (pro bono) on projects pertaining to my previous postdoc, but it was fairly obvious that I was still considered as having lost too much time/ not being current enough. I applied for postdocs/teaching positions one after the other and was only able to do some adjunct teaching until I started working as an outreach writer/ editor, which I'm still doing on the side. It was extremely hard to find a new postdoc, and even to get to the interview stage (this only happened twice, including the one for my current job). →



→ To land my current postdoc after so many years (the "break" became 6 years in total, of which I applied for jobs for 3-4, and I was on the verge of giving up for good), I've now realized was quite unusual and am immensely grateful to my employer.

## Has the pandemic impacted your career and family in the last couple of years?

It seemed even harder to apply for jobs. It was incredibly hard to work from home and to get any undisturbed stretches of time for more than, say, ~ 15 minutes. We had months upon months of online schooling with all the challenges that brought, and then an only child who couldn't see his friends, with all our family on another continent. Thus, my husband and I became our son's best friends, for good and bad... I exhaustively tried to work in the evenings or sneak away to the library (when it wasn't closed for the public due to the pandemic...). Definitely a challenge (Ontario, where we lived then, had the most extended school closures in Canada).



Immensely happy to finally be able to combine the greatest joys of my life again—being a mother and an astronomer.

## Which positive effects has motherhood had on your career?

I'm not sure there are any, to be honest. Having said that, I wouldn't change being a mother for the world, but I would have loved for academia to be more understanding and accommodating towards family life. As it is now - and I have understood that it is FAR worse than I initially thought - many might have to choose between the two (indeed, I know at least one who left academia for her family). In today's world, one should not have to choose, or sacrifice one's career.



# VALENTINA D'ORAZI

STAFF RESEARCHER



INAF Astronomical Observatory of Padua, Italy



1 children



## What do you enjoy the most about being a mother?

I discovered to have incredible energy and big enthusiasm towards life. My daughter taught me to watch the world with a brand new perspective every day, just as a new discovery every single moment. She taught me to focus on important things, overlooking worthless and stressful aspects of life.

“Motherhood renewed my scientific interests, looking at new topics and raising a more positive approach to life as a science researcher.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

I'm only at the beginning of my academic life as a young mother. Coming back to academia after maternity leave was, and still is, extremely challenging because I have to balance taking care of my daughter (and my house) with duties and responsibilities at work. These include, but are not limited to, mentoring students, writing peer-reviewed papers, organizing meetings, and videoconferences. Prioritization is crucial in this respect and I had to learn and develop a new approach to my life as a research scientist that focuses only on the most important things. The feeling of being overloaded by deadlines and demands is quite common, thus I had to learn to deal with this perception.



## Has the pandemic impacted your career and family in the last couple of years?

Not applicable in my case.



My child and me.

## Which positive effects has motherhood had on your career?

I'm learning how to effectively and efficiently manage time, balancing working hours with spending time with my family. Motherhood renewed my scientific interests, looking at new topics and raising a more positive approach to life as a science researcher. I feel happier at work and I concentrate more than I was used to doing before.



# VERONICA ALLEN

POSTDOCTORAL FELLOW



University of Groningen, The Netherlands



2 children



## What do you enjoy the most about being a mother?

My favorite thing is watching my children learn and grow. They change constantly and it's amazing how their interests blossom. I love their unique view of the world and all the questions that they come up with. They make me inspect my perspective on different things.

“I hope that institutions will understand the huge effect that the pandemic has had on parents of young children especially.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

The hardest thing has been working with people who can't relate to my situation. I rarely come across fellow early career mothers in astronomy and have worked hard to find my cohort (even though we are spread across the world). Most people have no concept of the amount of energy needed to be the primary breadwinner and primary caretaker in a family and then combine that with the anxiety of job insecurity. It's understandable why women leave academia for a stable job with better pay and fewer people judging them for having a family.



## Has the pandemic impacted your career and family in the last couple of years? What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

We were living in the US when lockdown started. Then, my older child had online school for an entire year and my younger child could no longer go to preschool. Some good came from the lockdown for my daughter because we realized she was struggling because of ADHD and got her treatment. My son, though, has suffered from missing out on socializing and learning that happens in the pre-school age. Trying to work from home with two children turned out to be impossible. I couldn't analyze data, write decent observing proposals, or work on papers when there was a constant stream of distractions. After we moved to the Netherlands in March 2021, I finally burned out and took an extended sick leave. I don't have advice for young mothers, but I hope that institutions will understand the huge effect that the pandemic has had on parents of young children especially, and not penalize us for a lack of productivity when hiring season comes around.



Me and my two children with a family friend at The Forum in Groningen, Netherlands.

## Which positive effects has motherhood had on your career?

Having to work within the hours that daycare or school is open made me much more efficient with my work. Another positive side of only being able to work in certain hours meant that family time was almost always dedicated to family. Searching for other mothers has also made me more interested in Diversity, Equity, and Inclusion—DEI—and reducing the barriers to a career in science for future researchers. In explaining scientific topics and the history of science to my daughter, I've learned a lot about communicating science to young children and specialize in lessons for primary school-aged children now.



# VIOLETTE IMPELLIZZERI

ALLEGRO ARC NODE PROGRAM MANAGER



Leiden Observatory, The Netherlands



2 children

## What do you enjoy the most about being a mother?

I love those things that are sometimes most difficult since my children get me out of my comfort zones every day. They question me, my stories, principles, "rules"—they even questioned my energy levels and ability to work on no sleep for days. I never thought I could be able of so much, and to multitask as much as I do. Thanks to them, I feel like I work harder and have a stronger sense of purpose. I'm sure that growing up they will continue to challenge me and my ways of thinking—so that I never become too confident and always stay open to new ideas.

“They [my children] will continue to challenge me and my ways of thinking—so that I never become too confident and always stay open to new ideas.”

## What's been the biggest challenge you've experienced when combining motherhood and academic life?

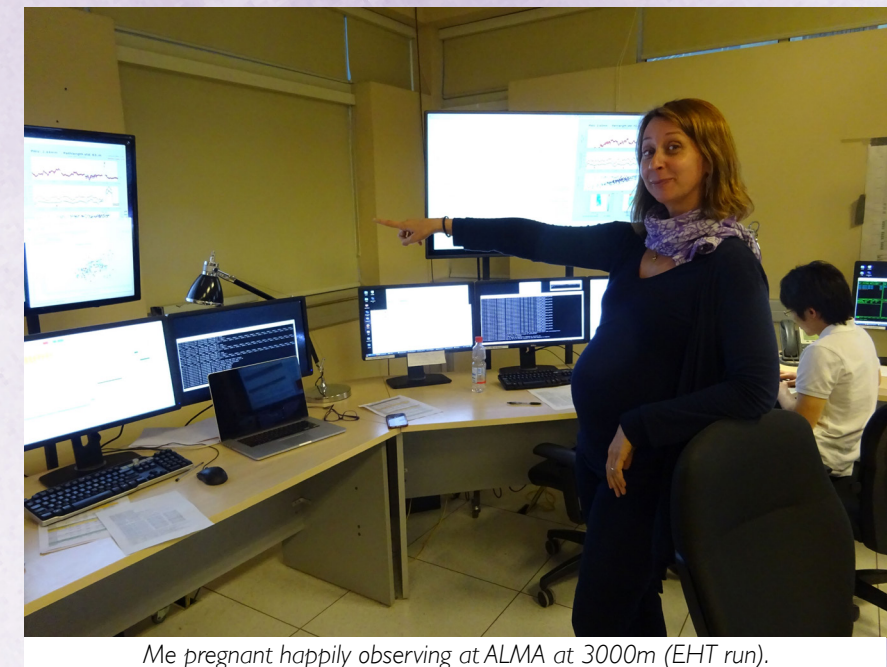
The biggest challenge for me beyond doubt is being able to stay competitive in the field with \*effectively\* fewer hours at my disposal in the day. This is very acute now since my children are still quite small and need dropping off, picking up, care when sick, and close supervision. I feel at a disadvantage to my colleagues, and also I feel pressured to not talk about it or acknowledge it since it sort of feels like it is "my problem"—or a bit of a taboo.



## Has the pandemic impacted your career and family in the last couple of years? If you're a senior mother, What would you recommend to young mothers who are struggling during the COVID-19 pandemic?

Yes, because children have been home more than ever—even many months at a time—and I have much, much less time to work. Also, the house has needed more attention because the children are more at home, and so I really have had to make up for it, sometimes waking up in the middle of the night just to catch up. Once a colleague called me "unprofessional" because my children were often interrupting me. It caused also mental stress.

I would suggest to other women to speak about this and to normalize being a working woman and a mother.



*Me pregnant happily observing at ALMA at 3000m (EHT run).*

## Which positive effects has motherhood had on your career?

Not many that I can think of, at least not in a practical manner—except to make me more determined and more willing to be flexible with my time. It's given me the ability to be more flexible and understanding of other people's struggles—even if not motherhood-related—and to understand that not all paths are the same.



# VIVIAN U

ASSISTANT RESEARCH ASTRONOMER



University of California, Irvine, USA



3 children



What do you enjoy the most about being a mother?

I love seeing my children grow and blossom with creativity and curiosity.

“It [motherhood...] gave me a broad perspective on how to best support and advocate for parents (but particularly mothers) in academia.”

What's been the biggest challenge you've experienced when combining motherhood and academic life?

Connecting with colleagues at (in-person) conferences competes with family time, particularly when traveling is required, and yet it seems necessary for enhancing the visibility of one's work and increasing one's network.



Celebrating my newborn daughter Vanille's 1-month mark with my sons Caspian and Altair.

Which positive effects has motherhood had on your career?

Not only did motherhood teach me to be more effective with time management when one has to juggle between work and family, it also gave me a broad perspective on how to best support and advocate for parents (but particularly mothers) in academia.



# YELENA STEIN

ASTRONOMER



DLR German Space Agency, Germany



3 children



**What do you enjoy the most about being a mother?**

It's unbelievable how much love you can feel for your children. How much your heart grows with every family member. It's really fulfilling. I wanted to be a mother since I was a teenager.

“Why can't there be long term contracts in science? Why is being a mother not valued more by other people and in general?”

**What's been the biggest challenge you've experienced when combining motherhood and academic life?**

I left academia and the scientific world with short contracts and lots of traveling because of my children.

2012 I started my PhD with scholarship funding for three years in Germany. In spring 2014 I had my first child during my PhD. Because of the child, I got an extension of my scholarship funding for 15 months. Beginning of 2016, my second child was born. Unfortunately, since I was much closer to the end of my funding, I got no extension at all—apart from three months of maternal protection time. After four and a half years, my funding ran out, but I was really lucky. My PhD supervisor had a research position for me to finish my PhD. →



→ The last six months of my PhD were really hard on me. It was so stressful. I finished my PhD successfully after 5 years and 10 months with two children.

During my PostDoc position at the CDS in Strasbourg, my third child was born, in the beginning of 2020, right before the lockdown. During this last pregnancy and after that, I just could not imagine the five of us traveling through the entire world. Thus, I applied for positions outside of academia. Since 2021, I'm not actively working in science anymore in my job. However, I'm still writing proposals and also published a paper last year, all in my free time.

In summary and to answer the question from above. For me as a mother, it wasn't possible to have a family and a career in astronomy. I'm still puzzled by all this. Why can't there be long-term contracts in science? Why is being a mother not valued more by other people and in general?

**Has the pandemic impacted your career and family in the last couple of years?**

Actually, it's really hard on me. I can't get things done like I used to.



September 2020.

**Which positive effects has motherhood had on your career?**

When I was pregnant with my first boy, at some point, I realized how much time I wasted in the past by reading on the internet, simply chatting or whatever. During my PhD, I realized that if I wanted to finish my PhD—with a child—I needed to stop wasting time. From that moment on—which I remember exactly—I was so much more productive. Also, I started doing as much as I could. Even if I had just a little time, I got something done. Others would not bother to do something in 5 min, but I used every second to be as productive as I can. As a mother, I'm so much better at doing a lot in little time.



“WHETHER YOUR MIND IS OFF INTO THE STARS AND GALAXIES, CHILDREN KEEP YOU GROUNDED. SO, YES, TWO EYES ON THE SKY, AND TWO FEET ON THE GROUND – THIS IS A GOOD COMBINATION.”

BEING A MOTHER FOR ALMOST 40 YEARS

HAS GIVEN ME THE WISDOM AND UNDERSTANDING TO PUT THINGS INTO PERSPECTIVE AND TO BE SUPPORTIVE AND COMPASSIONATE. THE STARS AND PLANETS WILL WAIT.

“FORGIVE YOURSELF AS MUCH AS POSSIBLE. ACCEPT THAT SUCCESS OR PERFECTION JUST DOESN'T ALWAYS HAPPEN.”

REGARDING WORK-LIFE BALANCE: “DO IT YOUR OWN WAY, EVEN THOUGH DIFFERENT FROM WHAT OTHERS CONSIDER AS THE NORM, AND DON'T FORGET TO SMILE.”

“PARENTING IS A SKILL I USE AT WORK ALL THE TIME WHEN MANAGING PEOPLE: IT'S ABOUT CONNECTING WITH PEOPLE, UNDERSTANDING THEIR NEEDS, AND FIGURING OUT A WAY TO MAKE THEM FULFILLED WITH THE WORK THEY'RE DOING.”

MOTHERHOOD [...] TAUGHT ME TO BE ALWAYS READY FOR THE UNEXPECTED, AND THAT THE UNEXPECTED IS VERY OFTEN WHAT GIVES YOU THE MOST JOY.

“MAYBE BEING A MOTHER IS LIKE HAVING THE POSSIBILITY TO LIVE MORE THAN YOUR OWN SINGLE LIFE.”

THIS EXPERIENCE [MOTHERHOOD] TRANSLATED WELL AS I

TOOK ON MORE LEADERSHIP AND COMMUNITY SUPPORT WORK, HELPING ME TO INTERACT WITH PEOPLE, TO LISTEN TO THEM, AND PUT MYSELF IN THEIR SHOES.

MY KIDS ARE A WONDERFUL DAILY REMINDER THAT TO BE A SCIENTIST IS TO REMAIN A KID AT HEART.