



Three children,  
one chair

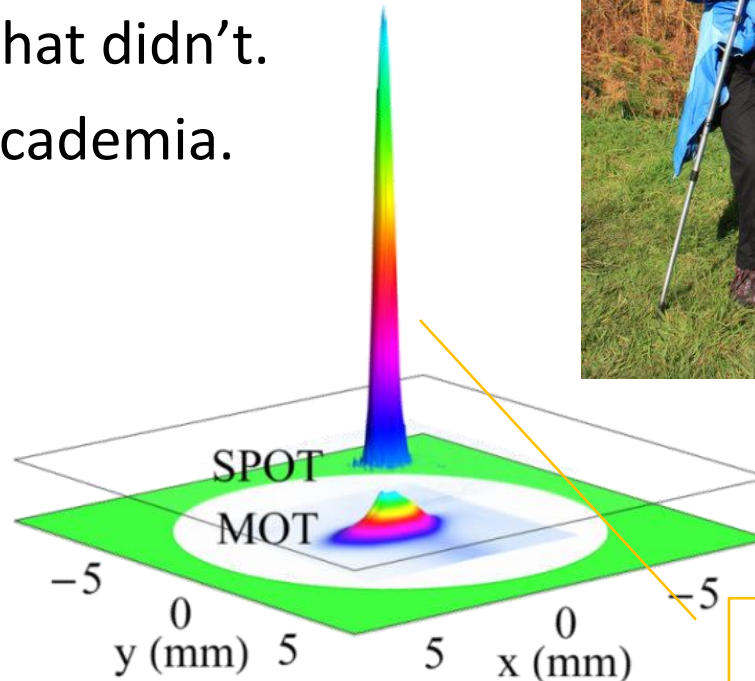
How to survive a career  
as scientist and parent

# The majority of researchers in academia will have children

I am an expert on structured light and cold atoms – not on parenthood!

- Personal account of what worked and what didn't.
- Some data/research on parenthood in academia.
- Discussion. Questions. Interrupt!

What do you see as the largest challenge for a parent in academia?



3 children

10 million atoms

# CV

1990 – 93 **Undergraduate** @Hannover

1993 – 94 **MPhil** in theoretical quantum optics @Strathclyde

1994 – 98 **Dr rer nat** in experimental atom optics @Imperial

1998 – 02 **Research Fellow** @Strathclyde

2002 – 05 **Royal Society of Edinburgh Research Fellow** @Strathclyde

2005 – 13 **Lecturer** @Glasgow

2005 – 07 **Royal Society Dorothy Hodgkin Research Fellow**

2005 – 10 **RCUK Roberts Research Fellow**

2013 – 19 **Reader**

2019 – **Professor in Quantum Optics**

“Should you really consider a PhD if you want to be a mother? Unfair on the tax payer!”

“If you give birth directly before the conference talk I can take over of course!”

**2001 First child**

**2003 Second child**

**2005 Third child**

Job interview 3 weeks after birth – recollection somewhat blurry

**2010 All kids at school**

“Having children is like any other hobby, you wouldn’t expect your employer to pay for it.”

**at uni/college**

“Once your children are over 25, the worst is over.”

Both parents  
2001-15 : ca 75%

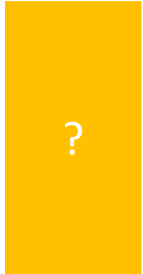




# Breadwinner (m) vs housewife (f)

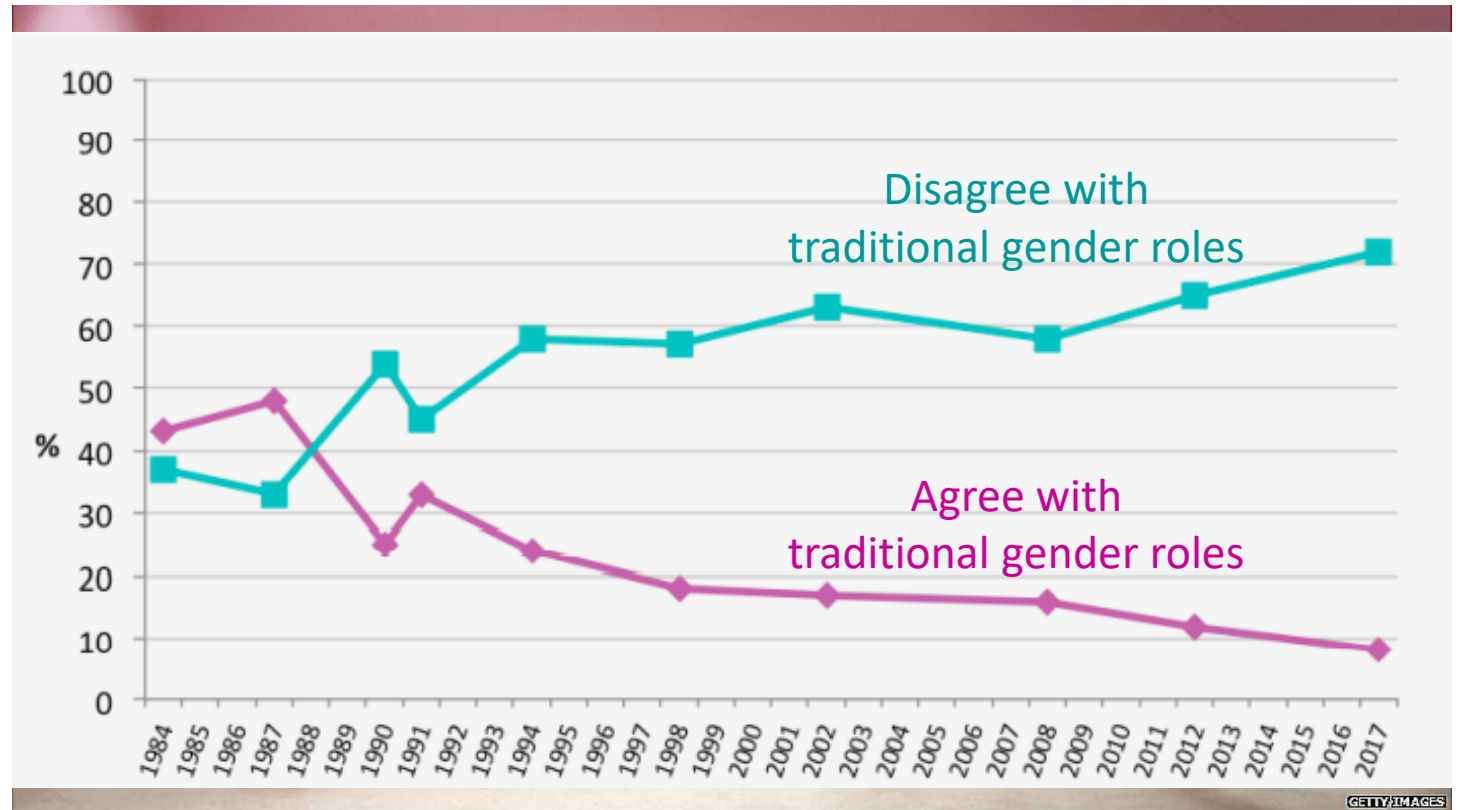
A mothers of pre-school kids:

- Could work full time
- Could work part time
- Should stay home



UK 2019, 75.1% of mothers worked, compared to 92.6% of fathers.

Childcare was the reason stated by 28.5% of mothers (4.8% of fathers) for working fewer hours.



British Social Attitudes: The 35th Report, London: The National Centre for Social Research (2018)

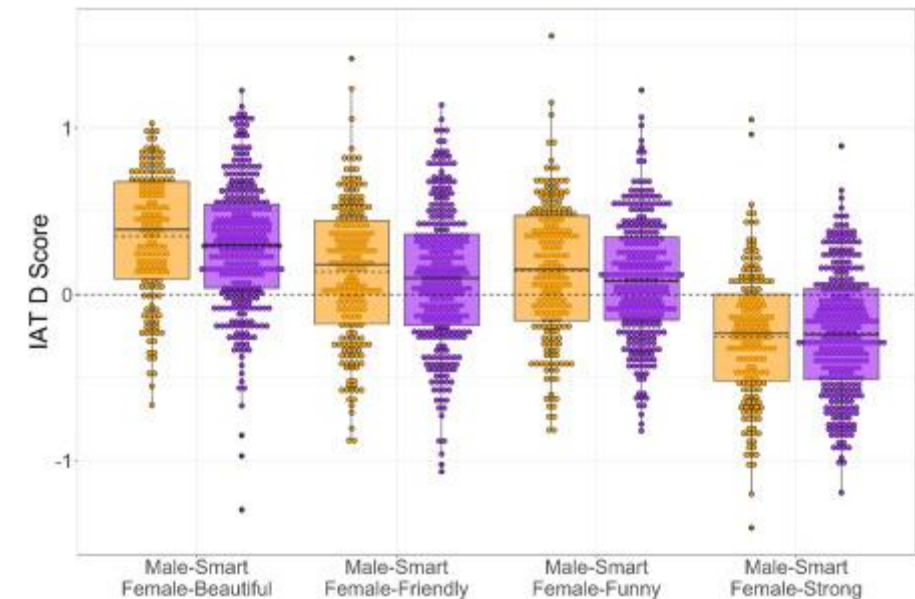
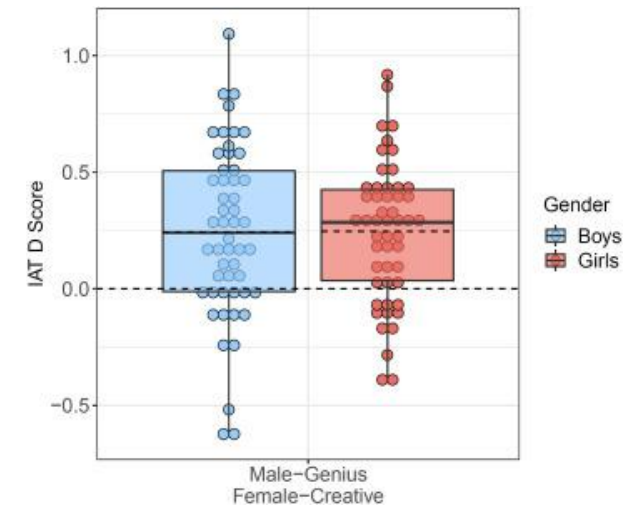
# Breadwinner (m) vs housewife (f)

Beginning to mid past century, **genius** was widely believed to be a male trait, while women were more naturally suited for **virtuous** tasks.

Still observed in 2020 study of 3000 participants from 78 countries via Implicit Association Tests.

- Robust association between male and brilliance.
- Men are seen to be (in this order) as: strong, brilliant, funny, friendly, beautiful.
- Participants reported that *others*—but not they themselves—think of brilliance and genius as male qualities.

Daniel Storage et al. “Adults and children implicitly associate brilliance with men more than women” *Journal of Experimental Social Psychology* 90 (2020), 104020



# Shared parental leave

How should a full-time working couple with a new baby divide the paid leave period between them?

Mother should take entire paid leave period

Mother should take most of paid leave

The mother and the father should each take half

Father should take most of paid leave

Father should take entire paid leave

Can't choose



?

# Shared parental leave

## Personal experience:

- 3 months maternity leave
- Reduced hours (70-80%) for both parents,
- kids at nursery 3 full days, later aftercare to cover the rest

## Advantage:

- Close bonding with both parents
- Both parents appreciate the challenges of “just looking after the kids”

## However:

- 70% pay does not mean 70% workload
- “Everyone works more than the contractual hours”
- Very little concessions made for fathers at work



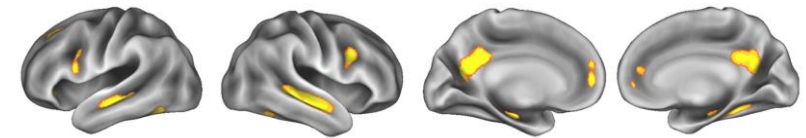


# Maternity leave and return to work

- Worked til due-date to safe maternity leave for the new baby
- During my maternity leave periods (3 months each)
  - I did not find regular time to practice piano.
  - I did publish articles, write news columns, move house and had a job interview.
- Scared to return to work, worried about no longer being mentally capable.

**Work is fantastic – you can relax for 10 mins without worrying about anything!**

Pregnancy renders substantial changes in brain structure, primarily reductions in gray matter volume in regions subserving social cognition.  
[\*Nature Neuroscience\* 20, 287 \(2017\)](#)



GM reduction happens also in adolescence and is associated with synaptic pruning - critical for healthy cognitive, emotional and social development.



# Childcare

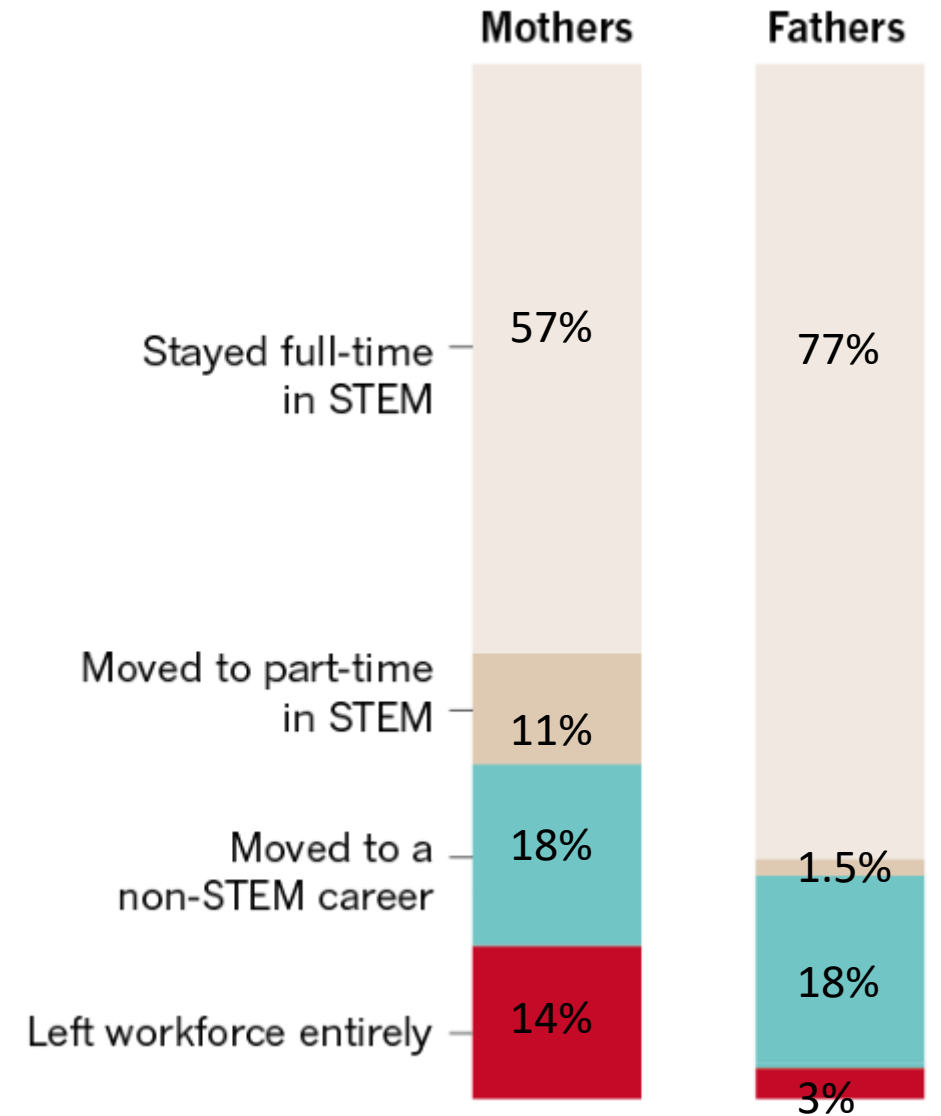
- Three kids at nursery, 3 days a week costed us more than double our mortgage payments.
- University nursery going bankrupt
- No family nearby to help with babysitting and initially no friends with kids...
- ...but occasional very welcome PhD student babysitters, and an unforgettable secretary.
- IKEA playrooms – 1h parent quality time
- Nursery holidays, sick kids... let's have fun in the office!

**You may work part time – you are always a full-time parent at heart (with full-time research ambitions).**



# Number puzzles?

- There are percentual more fathers than mothers in academia
  - 82% of men over 40, but only 71% of women have children
- Academic mothers have on average 1.8 children, fathers 2.2.



The changing career trajectories of new parents in STEM, E.A Cech, M.Blair-Loy (2019) PNAS 116 (10) 4182-4187

# Work-life-integration

- Parenting represents a threat to the ideal worker norm.
- Expectation:  
work as if family did not exist – and parent as if work did not exist





# What does it take?

- What does it mean to be a parent?
- What does it mean to be a researcher?
  - Often there are correlation of given definitions, with gender-specific tendencies.
  - Men seem to define their academic roles in ways that align more significantly with notions of the successful academic.

External judgement/  
success

Means in itself

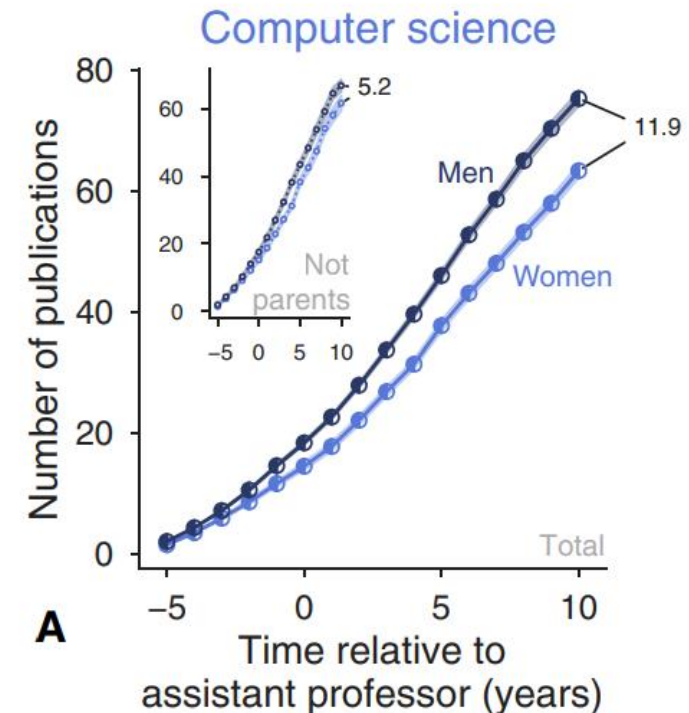
Holistic contribution

## The unequal impact of parenthood in academia

Allison C. Morgan<sup>1\*</sup>, Samuel F. Way<sup>1</sup>, Michael J. D. Hoefler<sup>1</sup>, Daniel B. Larremore<sup>1,2</sup>,  
Mirta Galesic<sup>3</sup>, Aaron Clauset<sup>1,2,3\*</sup>

# The parenthood penalty

- Women typically publish only 90% as much as men.
- Women publish less as last author, their publications are less cited, they accrue smaller grants, are promoted later...
  - Parenthood explains most of the gender productivity gap by lowering the average short-term productivity of mothers...
  - ...even as parents tend to be slightly more productive on average than nonparents.
  - However, the size of productivity penalty for mothers appears to have shrunk over time.



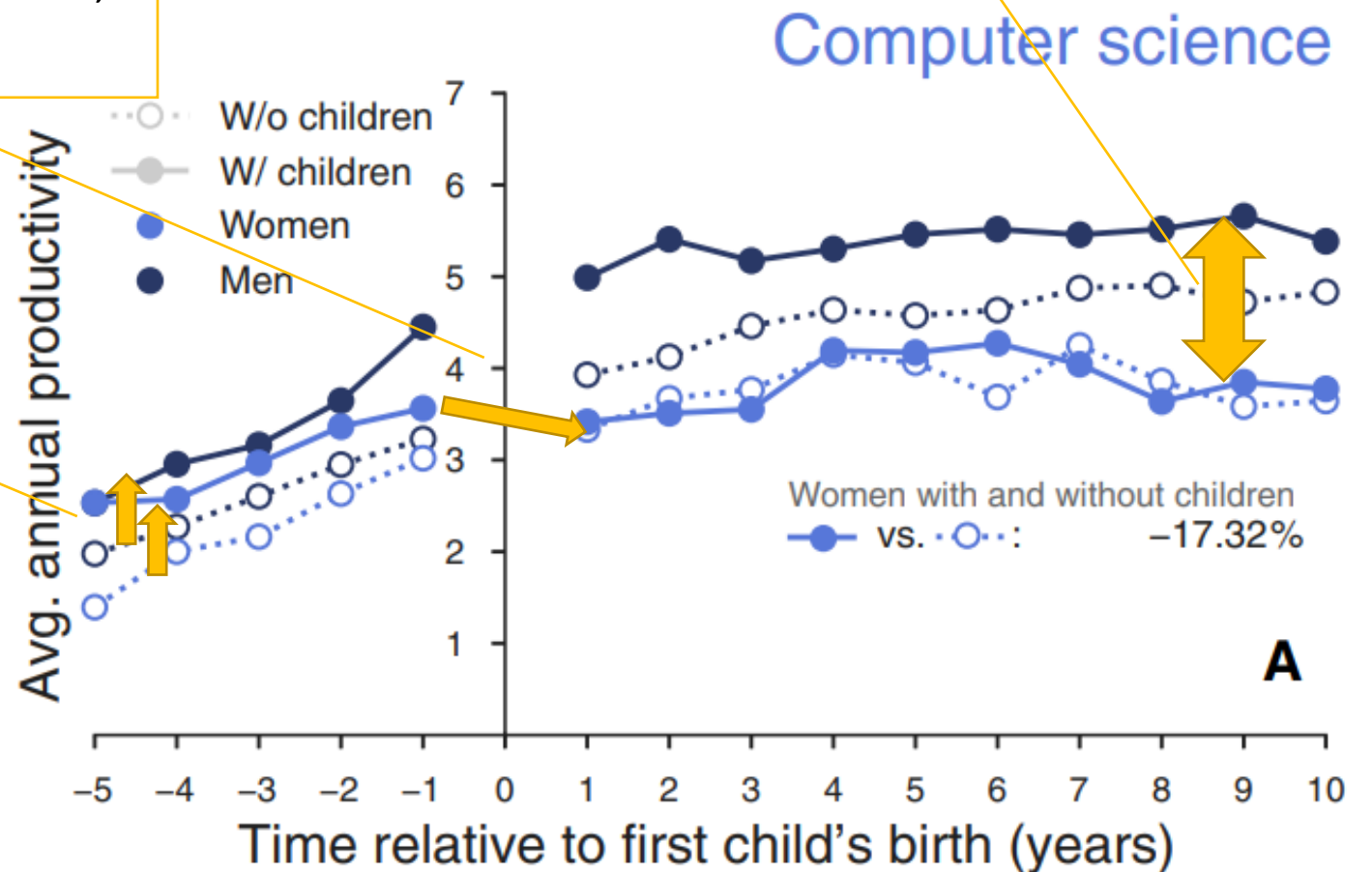
# The parenthood penalty

Annual productivity of mothers decreases immediately after childbirth, compared to non-mothers or men

Future parents are more productive than others!

Among computer science faculty, over the 10 years after the birth of their child, mothers produce on average 17.6 fewer papers than fathers—a gap that would take roughly 5 years of work for mothers to close.

Gendered productivity gap unexplained by the effects of parenthood: bias in peer review, discrimination, differences in service loads, or approaches to research?





# Conference photos



European Science Foundation Conference  
QUANTUM OPTICS  
San Feliu, 2002.



2013 ICTP at Trieste  
with Jenna Padgett



Aidan's conference at The Burn 2003



2006 ICAP Innsbruck  
conference dinner  
(photo credit: Eric!)



2005 ICOLS @Scotland  
with Barnett kids

# Some of the issues/solutions:

- **Time demands:** not enough places at university nurseries, not enough suitable holiday clubs, clashes between school and university terms, uni time table not always reflecting care responsibilities. What to do with a sick child?
- **External and internal demands,** and balancing expectations.
- **Return to work** – now grant scheme in place
- **Support structures** – now breastfeeding room and parenting support group
- **Emotional vulnerability** – hard to get alleviations of duties

**Discrimination against men taking parental responsibilities**  
**Discrimination against women with career responsibilities**



# In retrospect

- Having children is incredibly rewarding but drains your time and energy.
- I placed too many demands on myself, feeling I had to prove that I deserve to work in academia.
- Lost out on mobility, fellowship and grant applications, conferences, networking during the crucial time of being a young academic - hard or impossible to catch up.
- **Gained efficiency, compassion and perspective.**
- ... I'd do it all again

Hello Mama!

Did your plane land safely?  
I'm missing you already. :-)

L had a nightmare about your plane blowing up. Obviously it wasn't real!  
Lots of love (and kisses :-\* !!!!!!) from Emma





# What my kids say now about having parents in academia:



We sometimes pretended to be sick so we could come to the office and play with the whiteboard and swivelchairs.

Good to have role models albeit in a different field to push me to succeed.

I remember falling asleep with one of you sitting next to me, and your faces bathed in the blue light of the computer. This was very comforting.

As a child there was nothing special about being looked after by both parents.

I remember going to a colloquium when I was sick and seeing movies of huge moving telescopes.

As a teenager it was good not having parents around in the afternoons.

We got too many explanations when we asked questions about homework.

We had enough quality time together, we didn't need a stay-at-home mum. You are my role model.



You are to me as purple is to lavender. I love you!