

WOMAN  
**SCIENTISTS**

on the verge  
of a

NERVOUS

BREAKDOWN

or

How to be a scientist  
and

not become crazy  
in the meantime

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# Storyboard

**My work:**  
what I do



**My story:**  
how I became a  
scientist



**My problems:**  
how I survived in  
science 😊



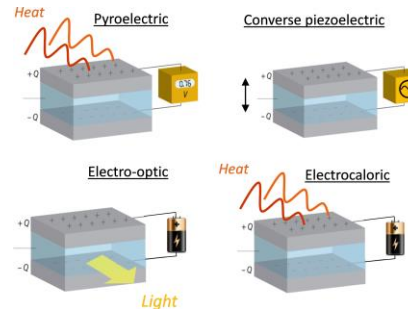
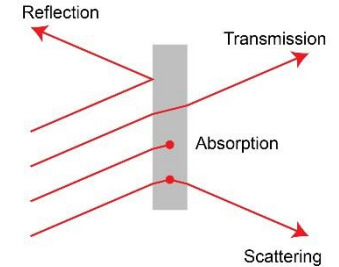
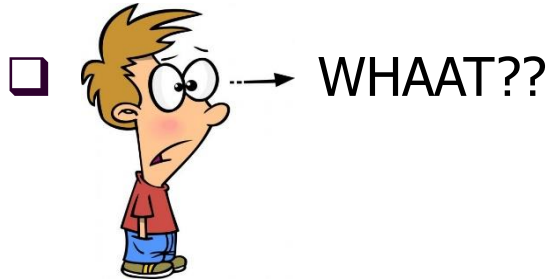
## Guidelines for this talk

- **How to find a successful balance between work and personal life**
- Prejudices and stereotypes I encountered
- Difficulties in my scientific career, decisions I had to make
- How I overcame some problems

# My work



"I study the interaction of light with matter, lattice dynamics of solids and the dielectric response of advanced materials useful for electronics and telecommunications" (or something of the sort...)



- What is lattice dynamics?
- Dielectric response?
- Advanced functional materials?

**WHAAAAT?**

- It's important to explain what we do in science to non-scientists
- Nowadays I say that **I want to save humanity finding a "wonder material" to save energy...** 😊

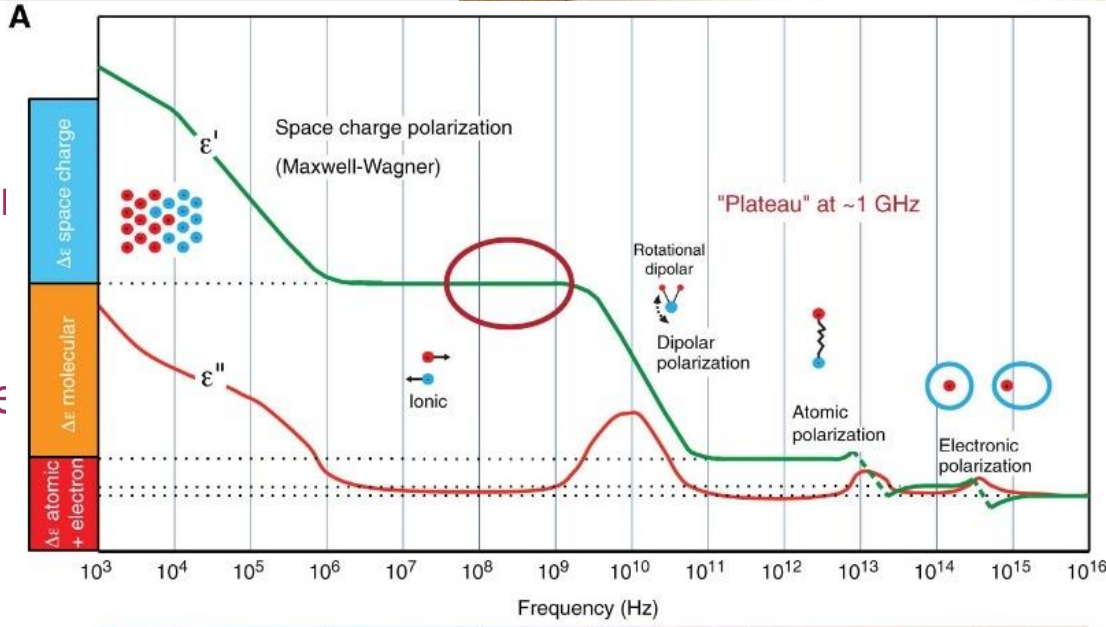
# My work



- Interaction of light with matter:  
IR spectroscopy, Raman scatter

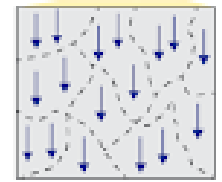
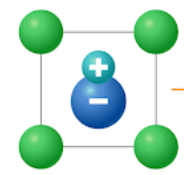
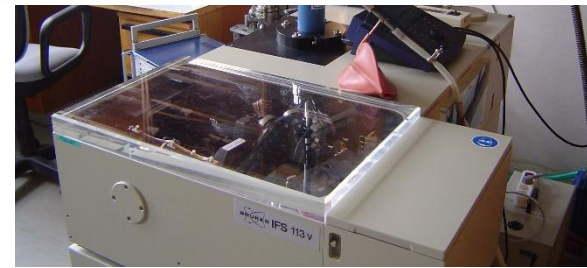
- Lattice dynamics of solids:  
Phonons (atomic vibrations), re crystal symmetry

- Dielectric response:  
How insulating materials respond to electric field in the frequency range  $10^3 \sim 10^{16}$  Hz



- Advanced materials useful for electronics and telecommunications:

- Piezoelectric (they are everywhere...)
- Ferroelectric ↑↑↑
- Antiferroelectric ↑↓ ↓↓
- Disordered materials (relaxors, defects, ill-defined crystal symmetry, exotic effects)



# My story



- ❑ I always wanted to be a scientist, I wanted to find out things, **but I wanted also to be a writer and a musician!**



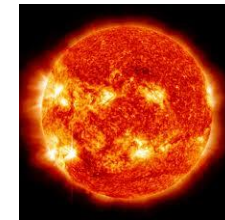
- ❑ First I wanted to be an ethologist: my role models were mainly men (Felix Rgz. de la Fuente, J. Cousteau)

- ❑ Later I found women (**Hipatia**, Ada Lovelace), but people only knew Marie Sklodowska-Curie



- ❑ I had a terrible fight with my father when I told him I wanted study physics [**prejudice, 1988**]

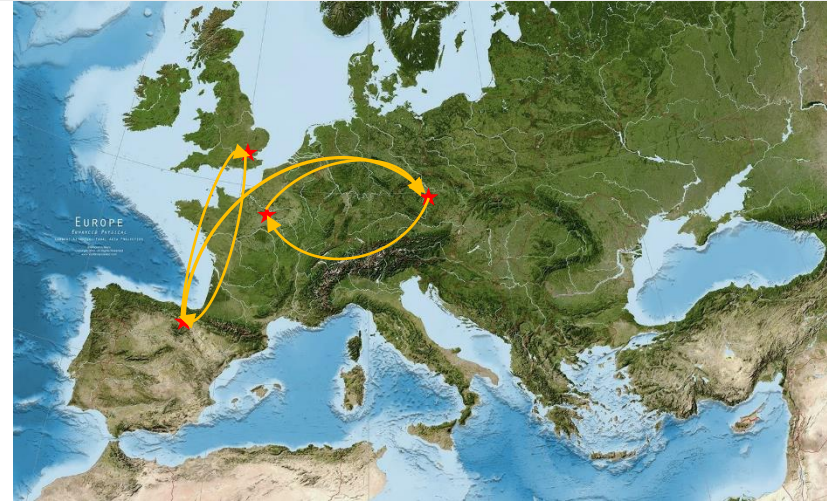
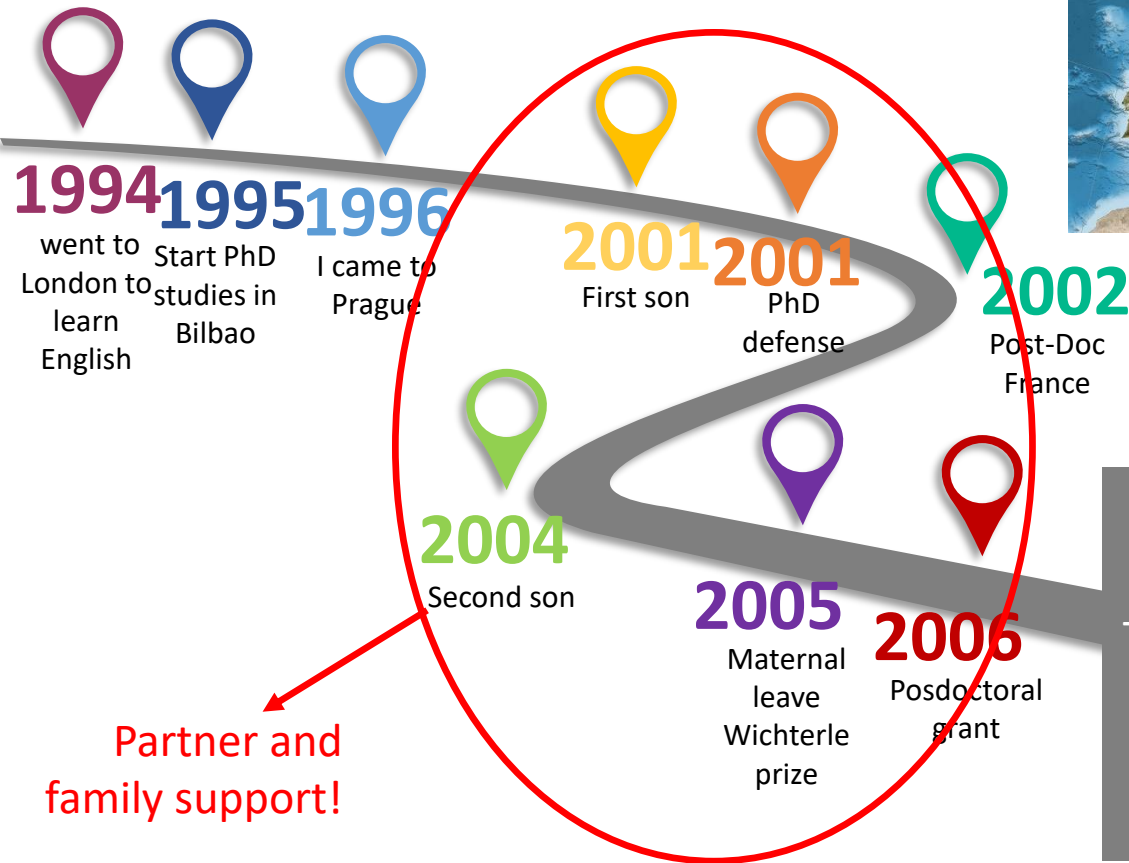
- ❑ I was fascinated by light: from stars to colors (Astrophysics and Optics), **I had to drop music...**



- ❑ When I graduated in Physics nobody wanted to hire me because nobody knew what a physicist is for, and I was a woman, I was supposed to sit at home and having children [**more prejudice, Spain 1993!**]

- ❑ But I still wanted to be a researcher...

# My timeline



# My timeline

**MOMENT!!!!**

That's not the whole story!  
I did other things!

I am not only a scientist!



I have another life when I'm not working

**Everybody has another life when not working...**



\* I have also hobbies!  
I also wanted to be a writer  
and a musician  
I love walking in nature...



# Parenthood and work



- ❑ **PROBLEMS:** Maternity leave means you are without brain for several months
- ❑ Absence of sleep, cognitive malfunction (you cannot read a paper and actually understand it)
- ❑ Your numbers go down, scientific community forgets you, no conferences...

- ❑ **SOLUTIONS:** share the “burden” with the other parent of the child

Actually, fathers are wonderful parents as well [unconscious bias]

- ❑ **Part-time** jobs!!!

$$100+0 = 50+50$$

$$100+0 < 70+70$$



# My timeline

Things were going not so well....

Personal problems  
Not getting grants  
My partner gets sick...

2008-2014

here it comes the Almodovar's film...:  
2 children and 3 grants!  
nervous breakdown

2015  
My partner dies

2016  
I got 3 grants!

I survived  
thanks to my  
family, friends  
and hobbies

2020  
COVID

We all survived  
thanks to  
family, friends  
and hobbies

2022

Life goes on...

# Problems



**Obstacles:** Prejudices, conscious and unconscious bias, parenthood ...

- ❑ When I was a PhD student almost no male scientist listened to my talks
- ❑ When I got my PhD almost no male scientist listened to my talks
- ❑ When I had several years of experience and I wore a long skirt, some male scientist started to listen to my talks!
- ❑ Sometimes you have to be heard: be assertive, ask questions
- ❑ Some colleagues wanted to help too much (the gentleman complex)
- ❑ When you have children society may judge you: [unconscious bias]

irrelevant questions after

Patience...

Girls, boys, grab the mic!



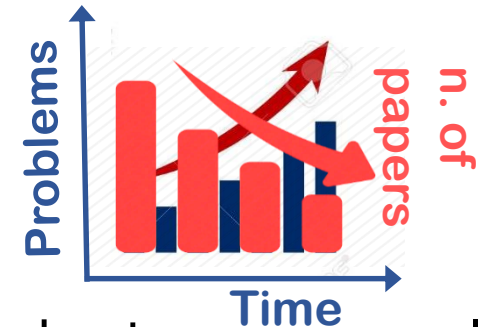
woman – “cuckoo” mother

man – “henpecked”, “softie”



# Personal life and work

- ❑ **My darkest hours:** when my partner became very ill and died in 2015 [2 children and 3 grants!], Covid - Isolation
- ❑ Personal problems  $\leftrightarrow$  bibliographic indices  
[Childcare, elder-care, illness...]
- ❑ You enter into "mediocrity" [reviewers don't care about your personal situation]
- ❑ The problem of the "Excellence criterion": Between age  $\sim$ (28-38) one has to be an excellent scientist, an excellent parent, and also comply with the Mobility rule!!! **Superhero complex**
- ❑ **SOLUTION: cooperation** instead of ~~competition~~  
not a hunt for the highest number of papers  
Science is not a business, accept ups and downs



# What have I learned?

## Life is not only science, so no nervous breakdown is worth of it

- Find the field of research you like and go for it: **Perseverance, long term goals**
- Science is rewarding in itself but you need:
  - ☑ A good boss
  - ☑ A good partner
  - ☑ Family support (if available)
- Find your personal enemies: **perfectionism, not saying no, impatience, fear of failure...** [they eat your FREE time]
- Build self-confidence:
  - You don't know everything but nobody does
  - What you don't know you can always learn it
  - **We deserve our personal life**

**You always have a boss!! 😊**

# Final messages

It's good to have fun at work  
but  
relax and enjoy your FREE time

- Find out how much time you want to devote to science (24/7 is not required)
- Find time to rest and do what you like (hobbies) This saved my life!
- Use your other potentials

They can be handy for science: world faces many challenges: sustainability, climate change... Out-of-the-box thinking wanted!

- Learn how to do NOTHING sometimes Recharge your batteries
- This gets more and more difficult when you have administrative duties or a big team, I'm working on that 😊

# Final message

