

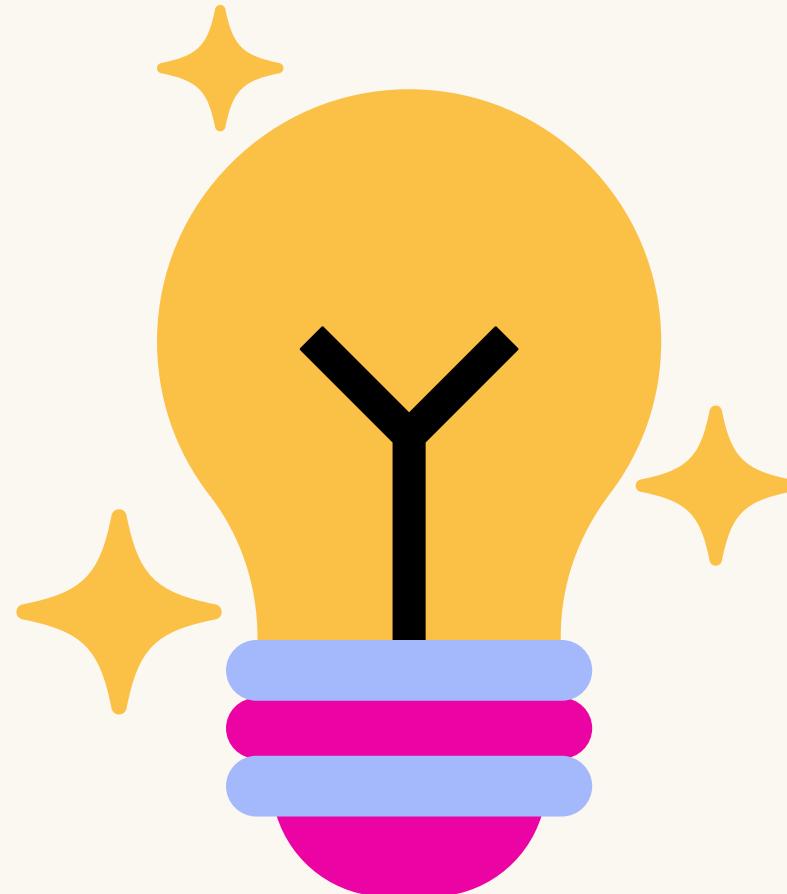


Today

I. 10 things you should do
but your advisor might
never tell you

II. Resources for PhD
students

10 THINGS you **should** do



* **but your advisor might never tell you**

10 Things

Write early

Celebrate wins

Read papers

- NOT line by line

Find your way

- Maths
- Organization

Don't feel dumb

- Stand up against your ignorance
- We all feel dumb

Manage time

- Research is inefficient

Accept imperfection

- Bad things will happen

Keep motivated

- Values
- People

Send emails

Go conferencing

1. Find your way



* Independence

MATH
Details vs big picture

ORGANIZATION
Paper vs latex, time, etc

MORE IN PART II

If a topic does not work out,
look for something else.
Your advisor might not
always give you solvable or
interesting problems



2. Manage time

* Research is unefficient

Things take time... but do not stick to something for too long

*Don't spend too much time
on a problem you don't know
the difficulty of.*

*It could happen that the
problem is way too hard but
you don't see it right away*

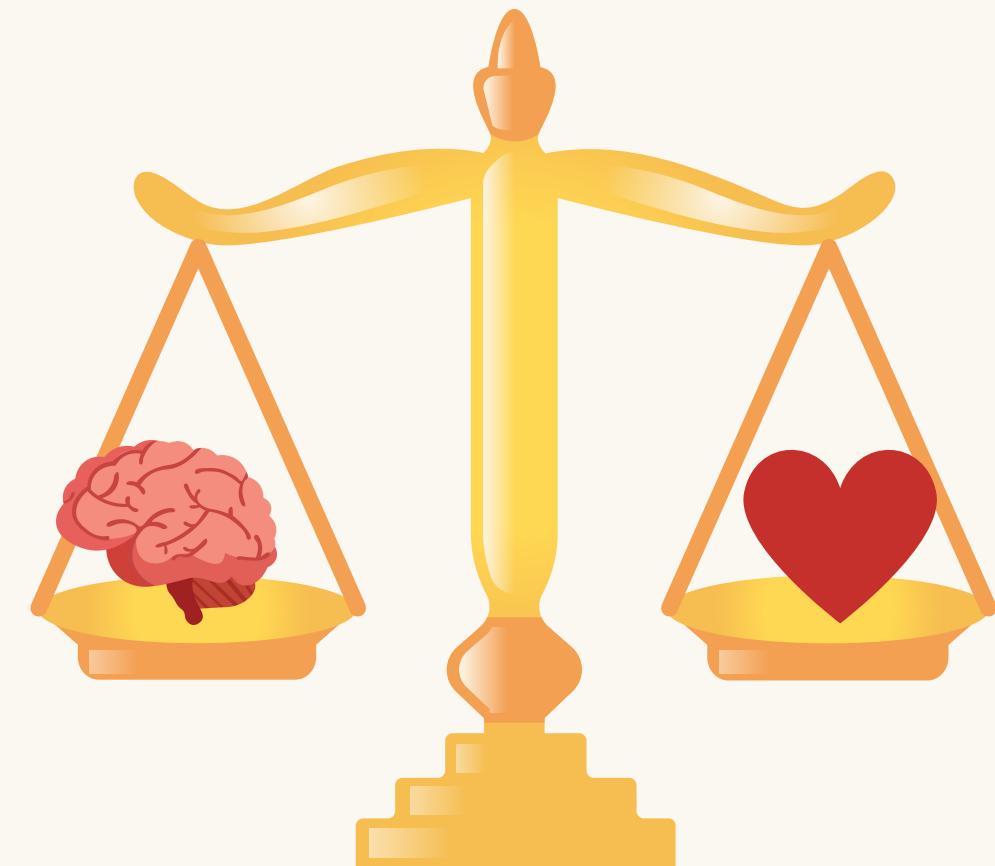
*Be pragmatic.
I'd try to produce small
generalizations to get some
feelings about how to do
research first before moving on
to more general questions.*

*One thing I personally
struggled with is that I spend
maybe too much time on a
small problem instead of
maybe skipping ahead to a
bigger problem.*



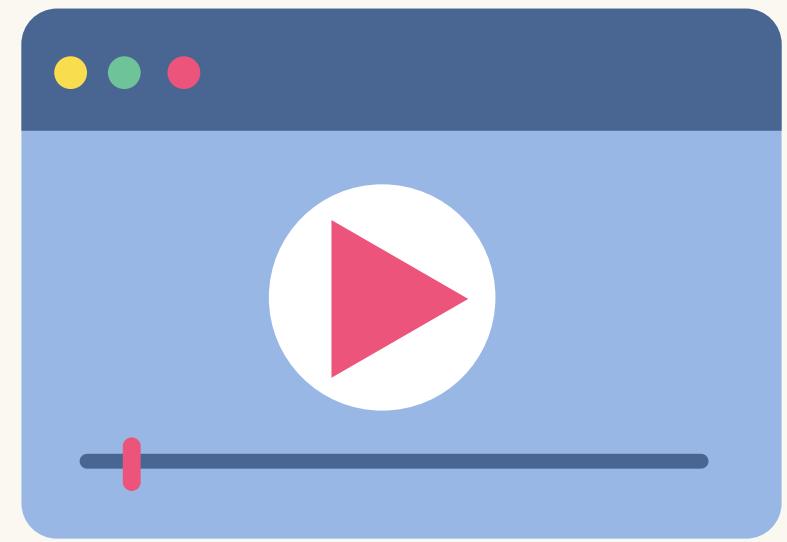
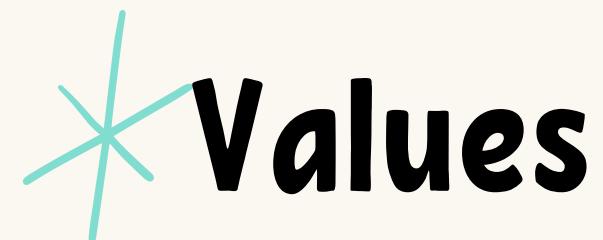
2.5 Work \subseteq Life

* Clear boundaries



You're kind of "working for yourself" in a way, and one tends to have loose rules regarding work. However, 3 or 4 years is too much of a long time, and one cannot keep having an unstructured day for so long. In my opinion, it is important to find activities to do in the evening and on the weekends

3. (Find out how to) keep motivated



I like to read blogs (and sometimes podcasts) about Math. It's usually not directly related to my research, but it keeps me motivated to continue with my projects.

4. Go conferencing

In hindsight I should have gone to some other university for a month or a semester



*Attend conferences and talks. For me, it has been a great way of **learning** about other topics and **connecting** with people, which can stimulate one's productivity.*

*it is important to see different experiences, other ways of living, other people struggling for the same reasons and for different reasons. I always came back much more **motivated** after attending some conference.*

Even if you don't give a talk.
*Ask your advisor for the first conference or google. Then you can **ask people** about which conferences are coming up.*

5. (Dare to) send emails



*Should I send an email
asking for...*

- a conference invitation*
- a meeting with someone*
- ...?*

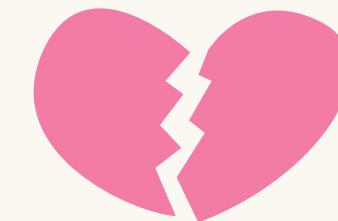
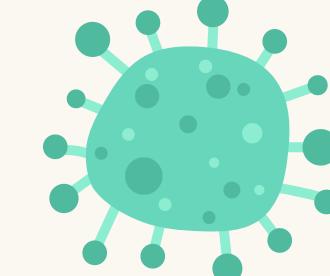
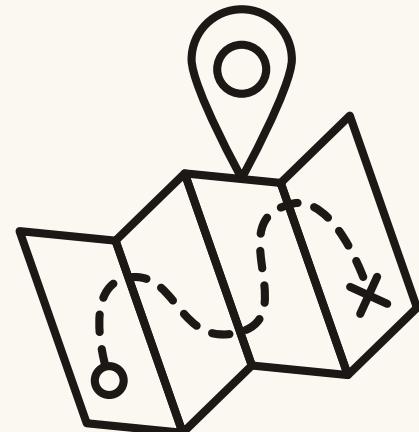
Always YES

*Its better to email the author if
the paper if something is not
clear rather than spend months
trying to make sense of their
theorem. If I had known this
sooner, I would have saved a lot
of time*

6. Accept imperfection

Bad things will happen

Do what you can



Your project could have been done in the 70's, there is a new paper that proves your project result and more, the paper you're writing could break in the last line, after a year you realize the problem is way to hard, etc

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$
$$A = \frac{a+b}{2}h$$
$$V = \frac{4}{3}\pi r^3$$

There will be tough moments: you will find a mistake on a proof that you thought it was complete, you won't see the light to close a project on time for your applications.

7. (Try to) not feel dumb



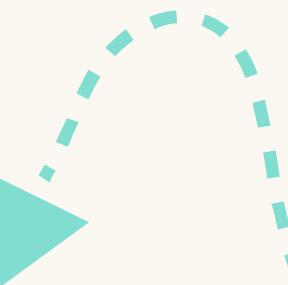
* We all feel dumb

* Stand up against your ignorance

I often thought if I don't understand certain concepts then I'm not qualified as a PhD student. Simply ask your supervisor whenever you don't understand. I have to admit that I felt ashamed to ask my supervisor seemingly easy questions.



8. (Find and) read papers



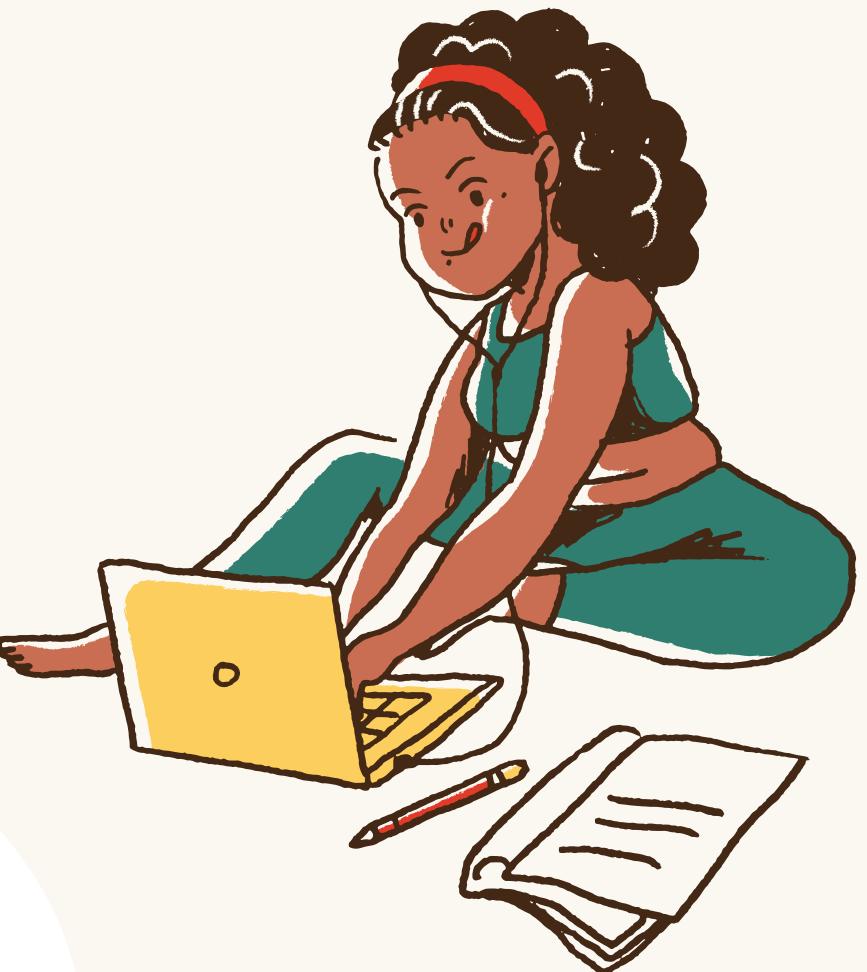
* DON'T read line by line

9. Write early



* Just do it

Type things as soon as possible. I discovered that there were many details that weren't completely justified when I was typing my thesis and that I didn't notice when I was just writing notes

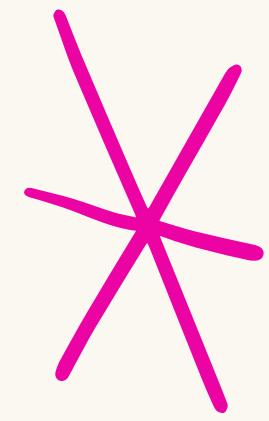


10. Celebrate your (small) wins





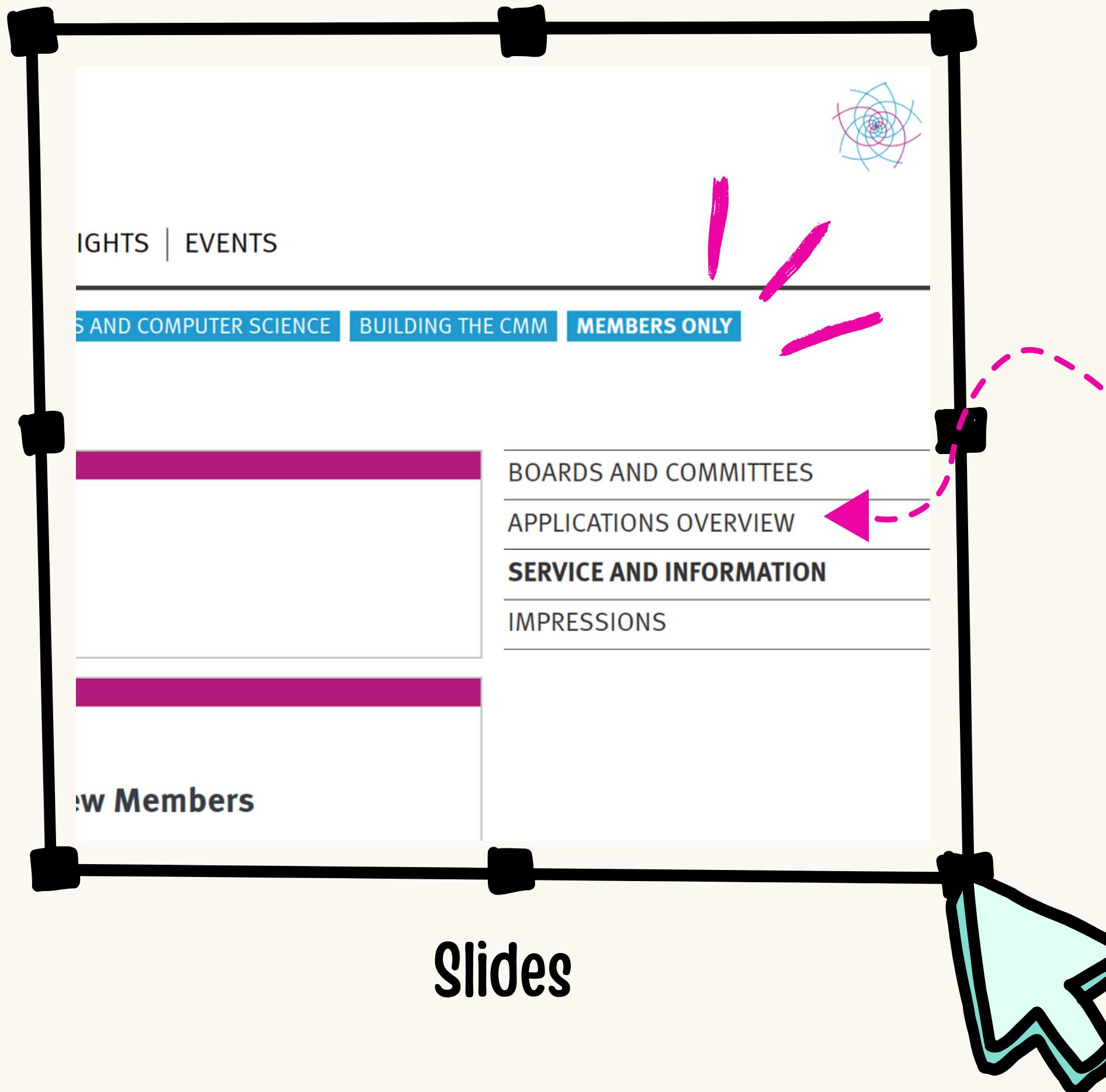
THANK YOU



RESOURCES for PhD students

...revisited



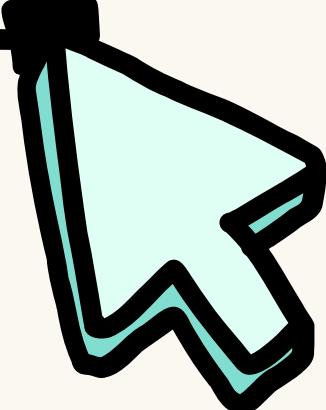
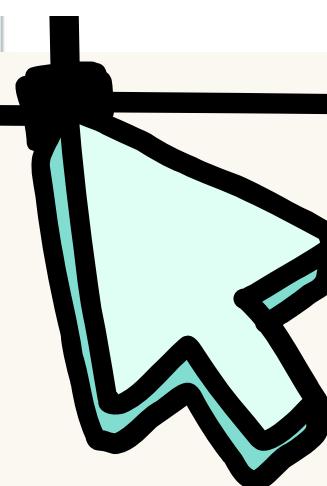


**Scroll down to:
Early Career
Researchers /
Useful Resources**

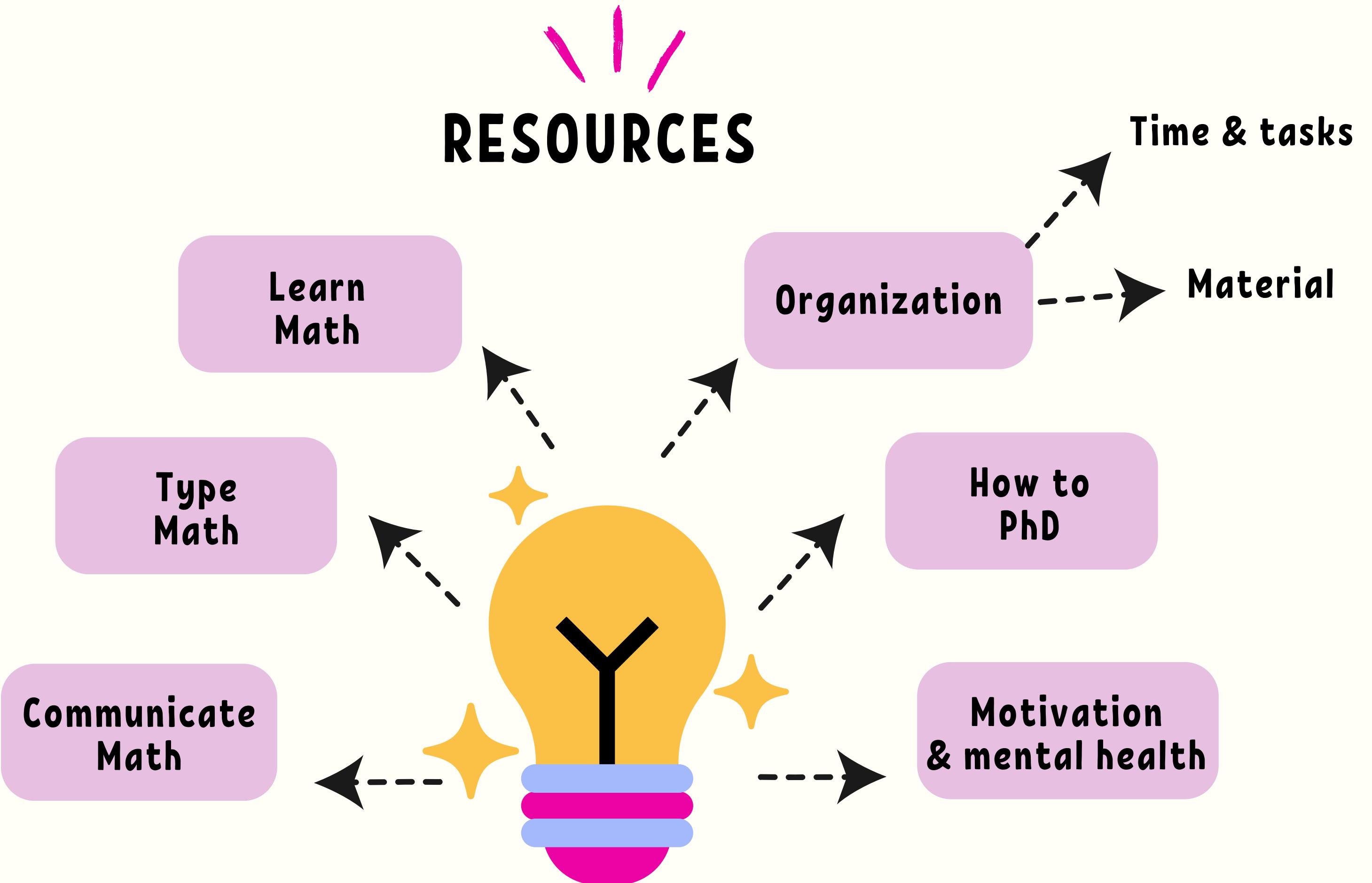
Slides

Philosophy of this talk

- PhD is difficult enough so don't try to reinvent the wheel.
- Things are too hard already, get help! Directly or indirectly.
- Many answers are just out there!



RESOURCES



Three pink exclamation marks are positioned above the word "RESOURCES".

Learn
Math

Organization

Time & tasks

Type
Math

How to
PhD

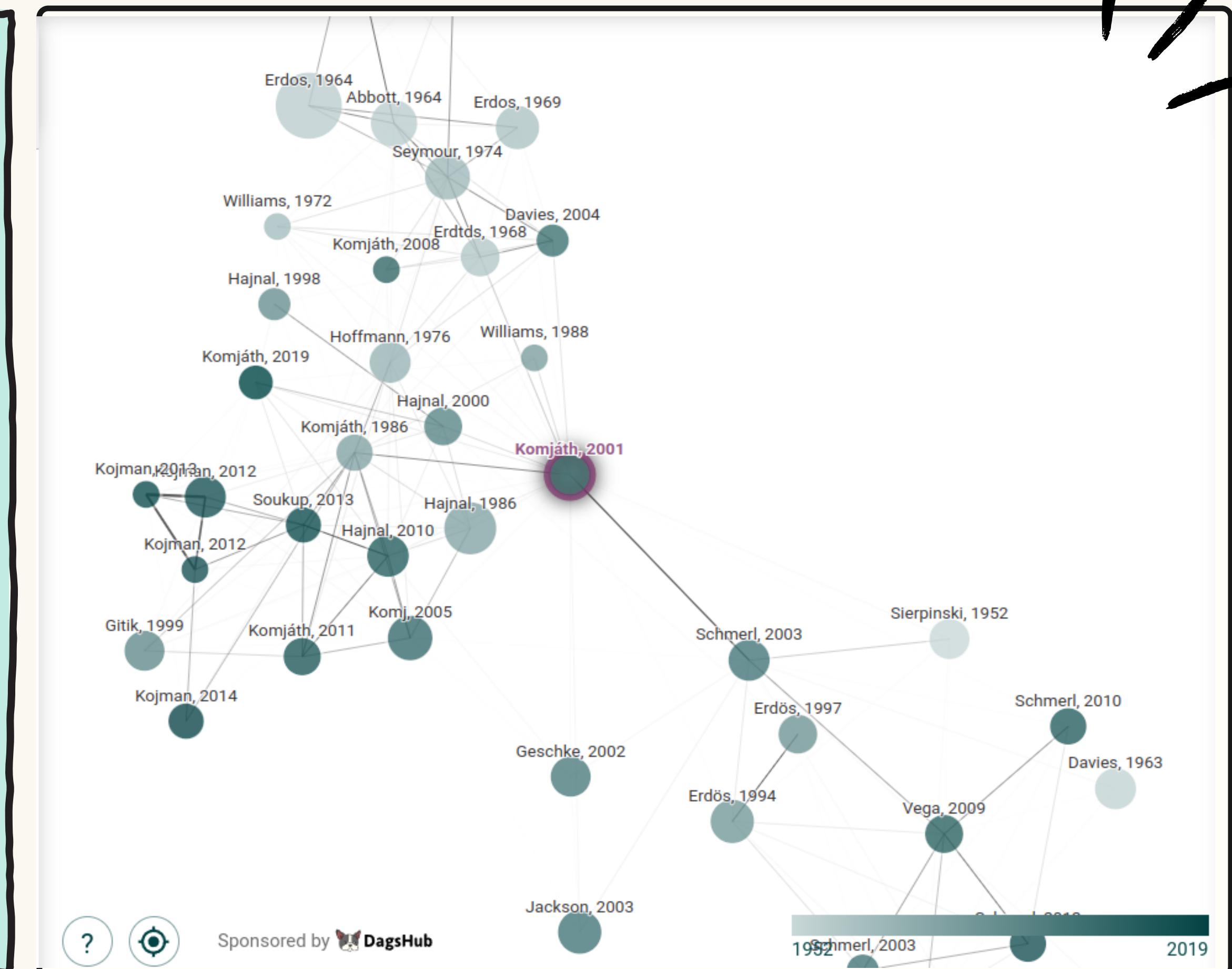
Material

Communicate
Math

Motivation
& mental health

Learn Math

- 1 ArXiv (mailinglists)
- 2 MathOverflow & Math StackExchange
- 3 Connected Papers, MathSciNet
- 4 Coursera, Youtube
- 5 Blogs



Type Math

1 LaTeX

2 Mathpix, deTexify

3 Lyx

4 Grammarly

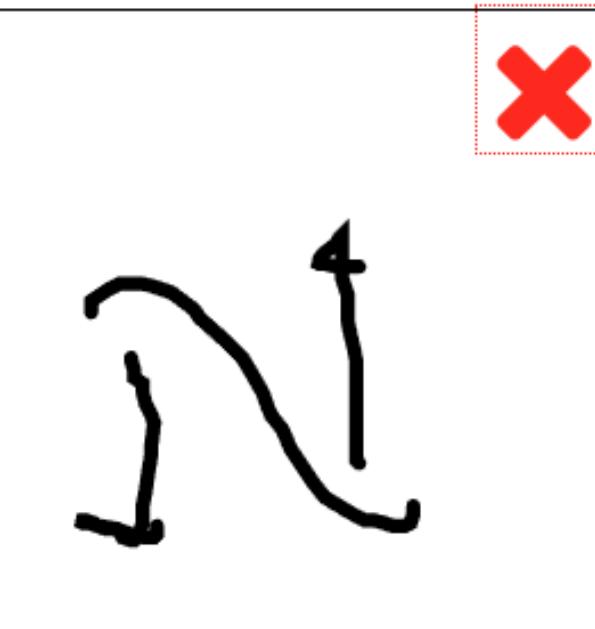
$$H := HOD_{A \cup \{A\}}^{L[g]}$$

where g is $\mathbb{C}(\omega)$ -generic over L , and
 $A = \{C_n : n < \omega\}$ is the set of Cohen reals added by g .

$$H := HOD_{A \cup \{A\}}^{[[g]]}$$

where g is $\mathbb{C}(\omega)$ -generic over L , and $A = \{C_n : n < \omega\}$ is the set of Cohen reals added by g .

Detexify



Score: 0.23012784732020758

\aleph
mathmode

Score: 0.24142438766384633

\usepackage{ upgreek }
\uppsi
mathmode

Communicating

- 1 Mathematical Writing
- 2 How to give a good talk
- 3 How to write Math
- 4 Ask people

How to maximise the chances of your message getting across (1/3)

Tell a good story

.....but make it a good *maths* story.



Crustacean style

- ▶ structure on outside.
- ▶ good for maths talks.



Vertebrate style

- ▶ structure hidden inside.
- ▶ good for detective stories.

Everything by date What should I read? 2 more...

↑↓ 2 sorts ▾ Related to Research quest... ▾

Article 51 ... +

- Hilbert spaces without countable AC October 12, 2023 Blackadar Farah Karagila
- Borel circle squaring September 7, 2023 Marks Unger
- Unit sphere fibrations in euclidean spaces September 7, 2023 Asimov Frick Harrison Pegden
- Topological partitions September 7, 2023 Bankston McGovern
- How to Tee a Hyperplane August 31, 2023 Rosen
- Decomposing the real line into everywhere isomorphic suborders June 21, 2023 Ervin
- Intermediate Submodels and Generic Extensions in Set Theory June 20, 2023 Grigorieff
- Three-point sets Octo...
- No n-point set is σ -compact Octo...
- A Four-Point Set That Cannot Be Split

Load more ...
+ New

 Actions of the day

- Finish MM connect talk
- Send receipts travel
- Email Prof.

Later this week

- Type transc degree step 1





Eva O. L. Lantsoght

The A-Z of the PhD Trajectory

A Practical Guide for a Successful
Journey

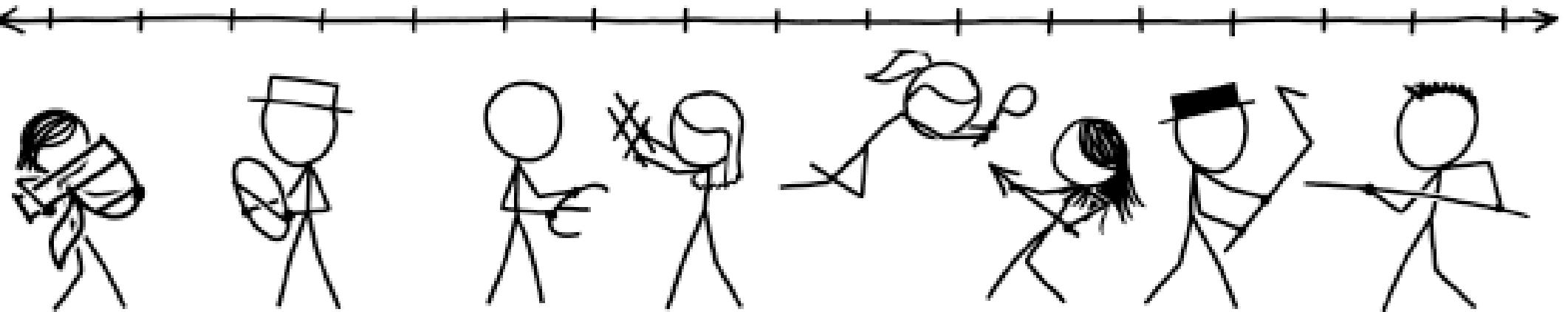
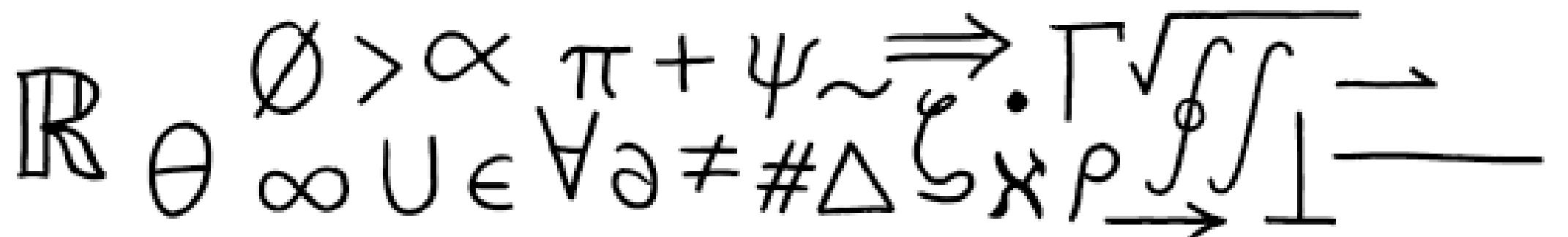
How to PhD

- 1 **The A to Z of the PhD Trayectomy**
 - 2 **PhD and Productivity**
 - 3 **How to PhD (podcast)**
 - 4 **The illustrated guide to a Ph.D.**
- 

MATHEMATICAL SYMBOLS

BY HOW USEFUL THEY WOULD BE IN A FIGHT

MORE USEFUL
→



Motivation

- 1 Math memes
- 2 Talking with people
- 3 Overcoming the second year slump (slides)
- 4 Books, blogs

Managing Your Mental Health During Your PhD

THE THESIS WHISPERER
—PEGGY ORENSTEIN

Burnout
THE SECRET



THANK YOU

