Álvaro Cendal García

Dark ideas for the dark universe

Agenda

1. Who am I?
2. What have I done?
3. What am I doing?
4. Why am I here?

Part 1

Who am I?

1 Who am I?

- I'm Álvaro

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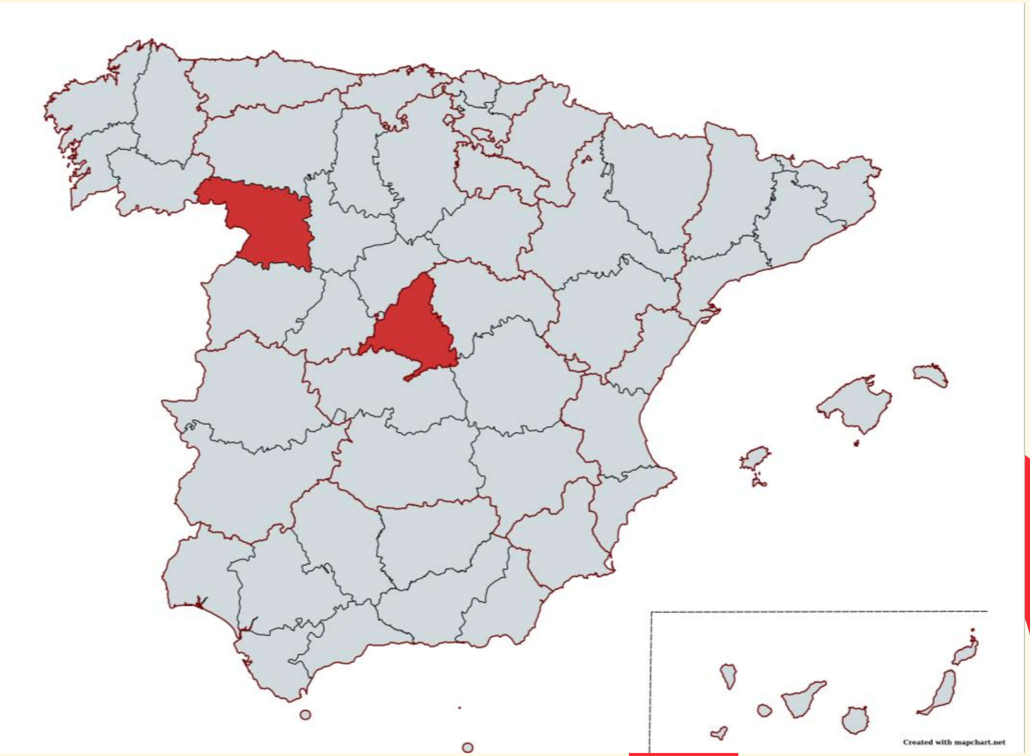
- I'm Álvaro
- Born and raised in Madrid, but all my family is from Zamora



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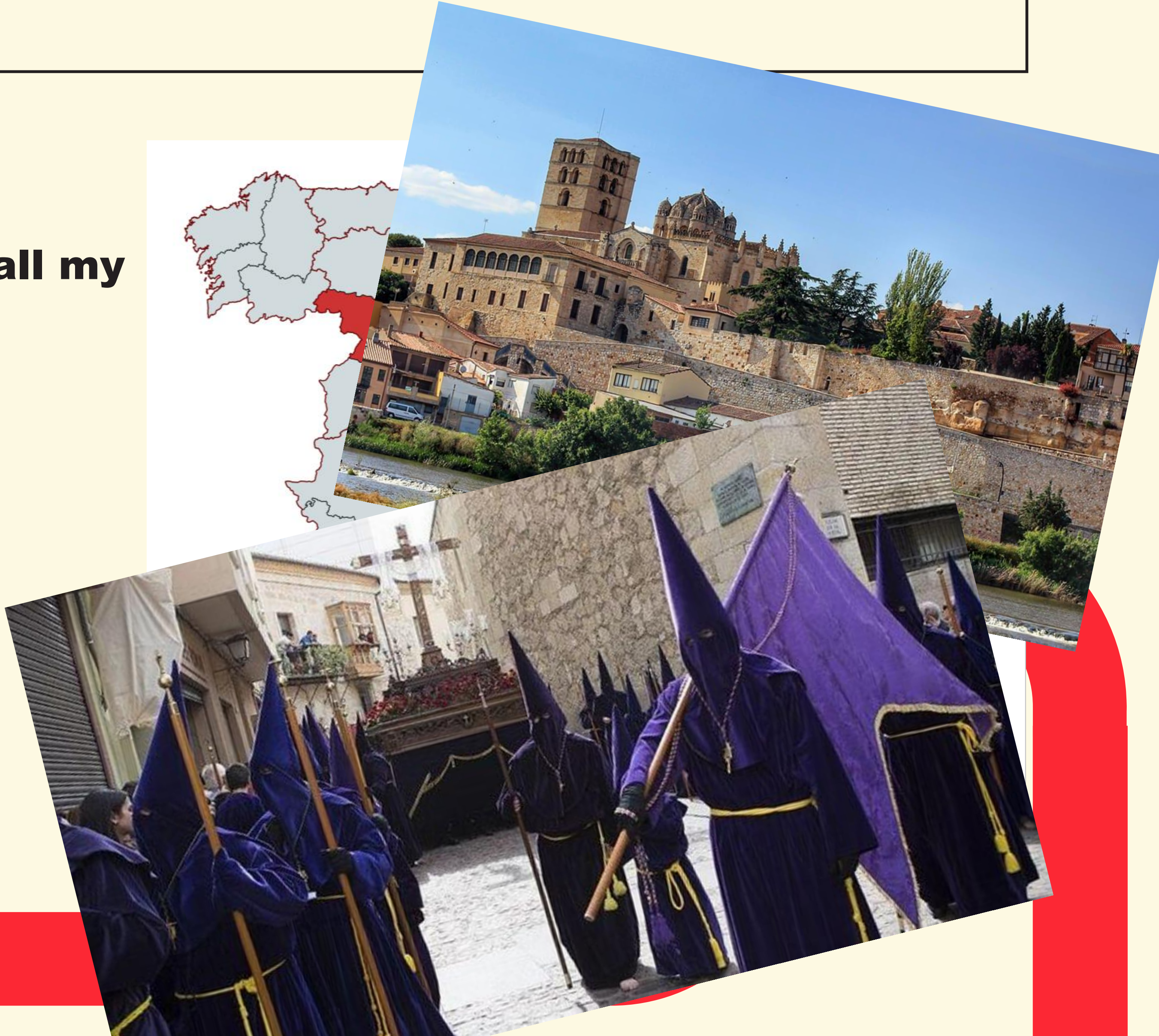

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Other interests and hobbies:
- Music (both playing and listening) [*so original*]
- Going to museums [*wow, so different*]
- Vermú and politics (together)

Part 2

What have I done?

↖ 2 What have I done?

Bachelor Thesis (2021-22)	Master Thesis (2022-2023)	PhD Thesis (2023-ongoing)
Loop **Q**uantum **C**osmology	**Toy models of Loop Quantum Gravity (LQG)** Published on PRD (13 June 2024) [2403.15320]	**New physics for cosmology** - **Dark gravitons** - **Dark matter decay** - **GW lensing** - **Quantum gravity**

Part 3

What am I doing?

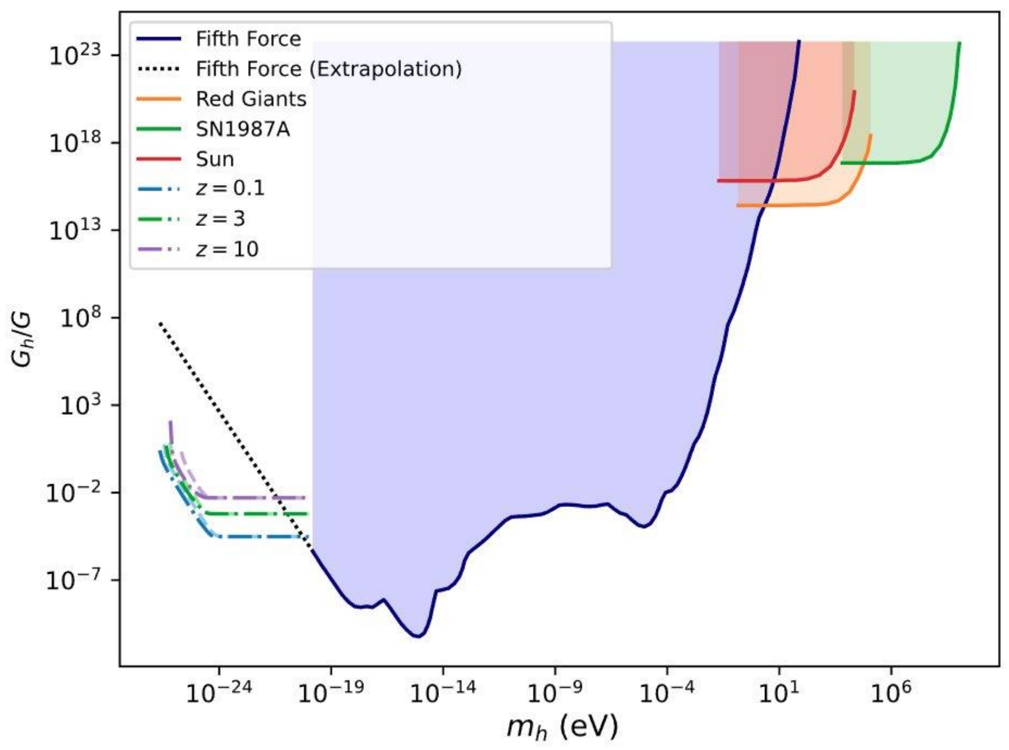
3 What am I doing?

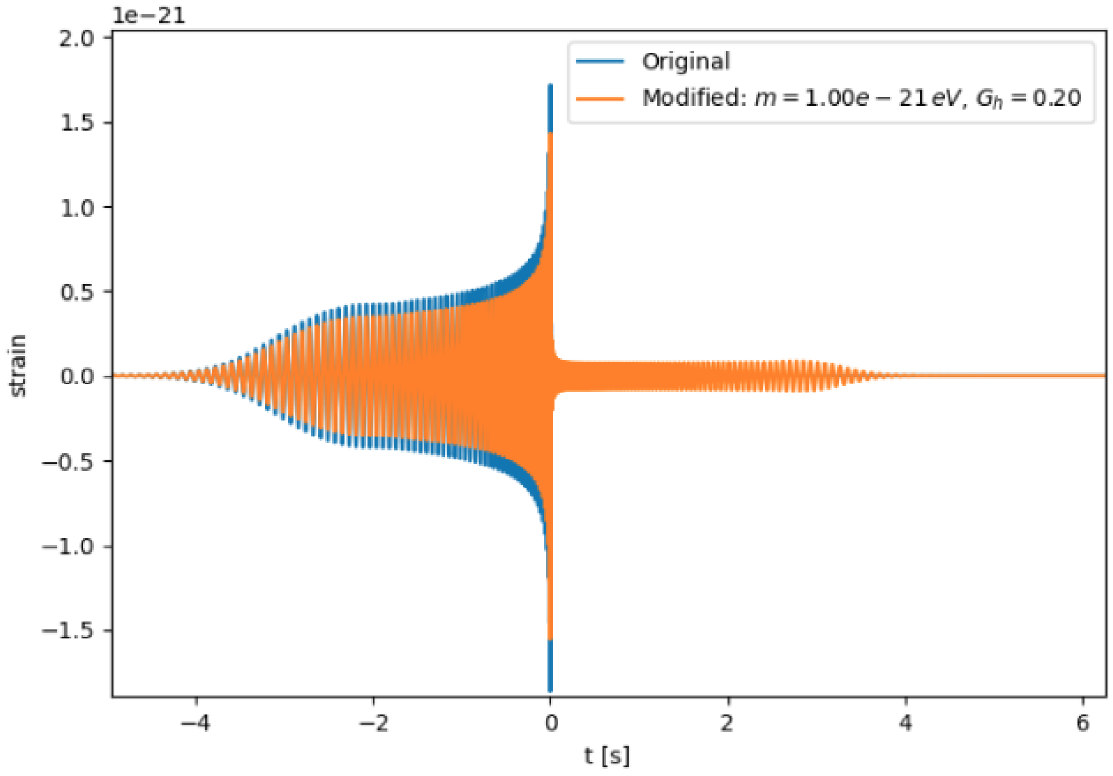
Dark gravitons and gravitational waves!

1. GR (massless) graviton + additional massive spin-2 particle
2. Couple it to matter
3. Be inaccurate a thousand times
4. See what happens to GW

3

What am I doing?





Part 4

Why am I here?

4 Why am I here?

- When considering new physics (e.g., dark matter models or massive gravitons) in cosmological settings, we can't just ignore what happens in others...
- **But that's what we very commonly do!**
- I look forward to learning from you about other areas of physics, so I can take them into account in my work :)

Thank you!