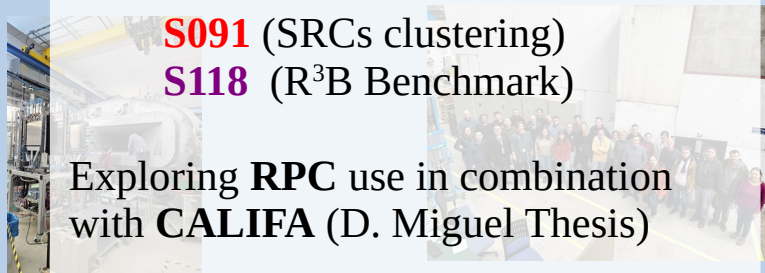


## Physics @ R<sup>3</sup>B

- **RPC** included in experiments



Exploring **RPC** use in combination with **CALIFA** (D. Miguel Thesis)

**DAQ** and **analysis** contributions.

- Prepare for **2025 Physics campaign**
- ★ **Hypernuclei**

- 
- Funding application submitted: ~250 k€

## Nuclear Astrophysics

### Nuclear Reactions



- ★ **New poposals** for ISOLDE-CERN before LS3

- 
- ★ **Execute Experiments @ small scale facilities:** (Seville-Debrecen-Lisbon)

- 
- ★ **Target developments**

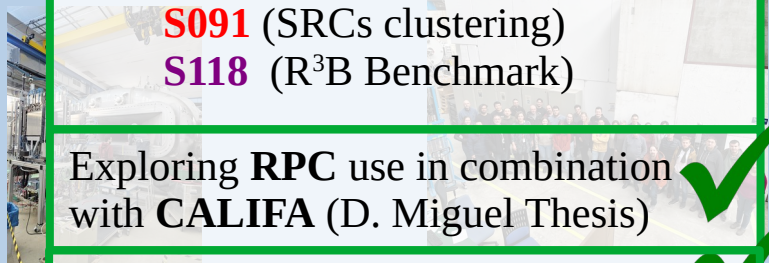


### Explosive Modelling

- Atomic calculations:
    - ★ Collision strengths for electron-impact exc.
    - ★ Photoionization & recombination rates
  - Advance towards astrophysical simulations
    - ★ ERC – Synergy **HEAVYMETAL**
- 
- Funding applications submitted (two projects: ~ 80 k€)

## Physics @ R<sup>3</sup>B

- **RPC** included in experiments



**S091** (SRCs clustering)

**S118** (R<sup>3</sup>B Benchmark)

Exploring **RPC** use in combination with **CALIFA** (D. Miguel Thesis)

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## Nuclear Astrophysics

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## Physics @ R<sup>3</sup>B

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## Nuclear Astrophysics

### Nuclear Reactions



- ★ **New proposals** for ISOLDE-CERN before LS3

- ★ **Execute Experiments @ small scale facilities:** (Seville-Debrecen-Lisbon)

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### Explosive Modelling

- Atomic calculations:
  - ★ Collision strengths for electron-impact exc.
  - ★ Photoionization & recombination rates
- Advance towards astrophysical simulations
  - ★ ERC – Synergy **HEAVYMETAL**
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## Physics @ R<sup>3</sup>B

- RPC included in experiments

**S091** (SRCs clustering)

**S118** (R<sup>3</sup>B Benchmark)

Exploring **RPC** use in combination with **CALIFA** (D. Miguel Thesis)

**DAQ** and **analysis** contributions.

- Prepare for 2025 Physics campaign

★ Hypernuclei 2025

- Funding application submitted: ~250 k€

## Nuclear Astrophysics

### Nuclear Reactions



- ★ New proposals for ISOLDE CERN before LS3

- ★ Execute Experiments @ small scale facilities: (Seville-Debrecen-Lisbon)

- ★ Target developments



### Explosive Modelling

- Atomic calculations

- ★ Collision strengths for electron-impact exc.

- ★ Photoionization & recombination rates

- Advance towards astrophysical simulations

- ★ ERC – Synergy **HEAVYMETAL**

- Funding applications approved (one project: ~ 50 k€)

# NUC-RIA People 2024



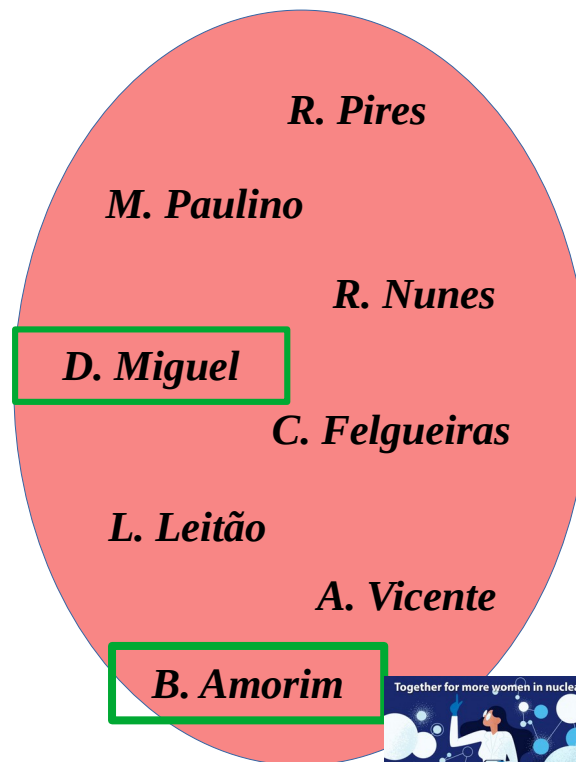
## Senior



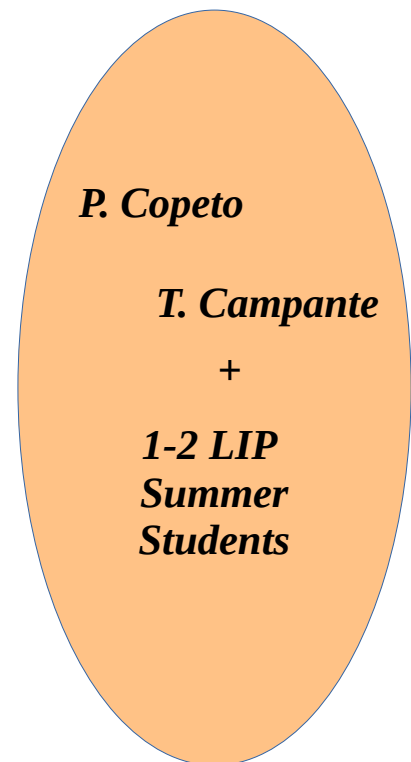
## Ph.D.



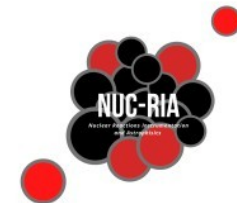
## M.Sc.



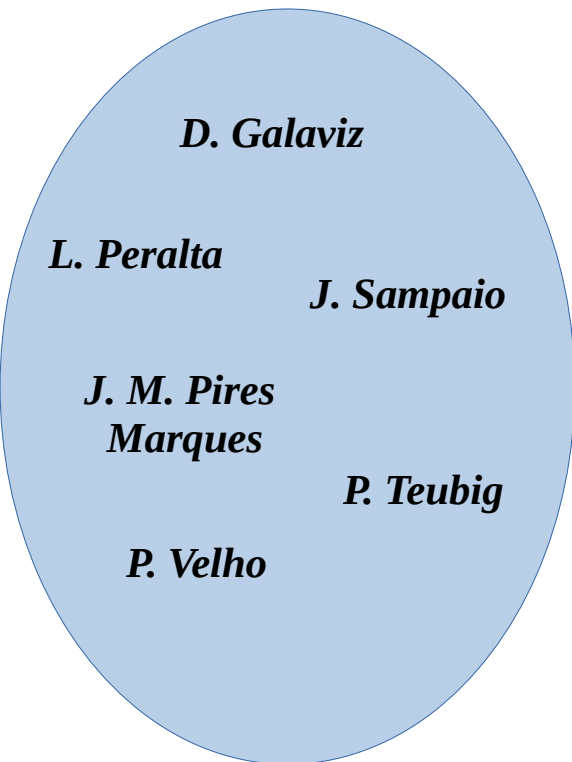
## B.Sc.



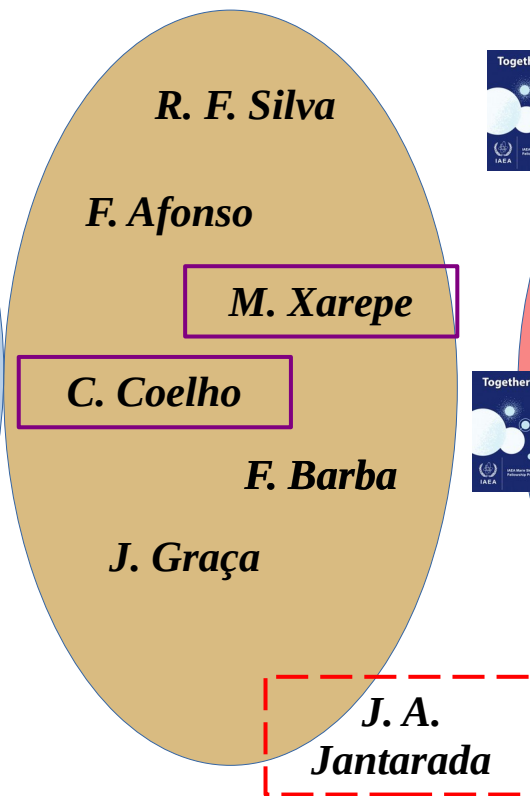
# NUC-RIA People 2025



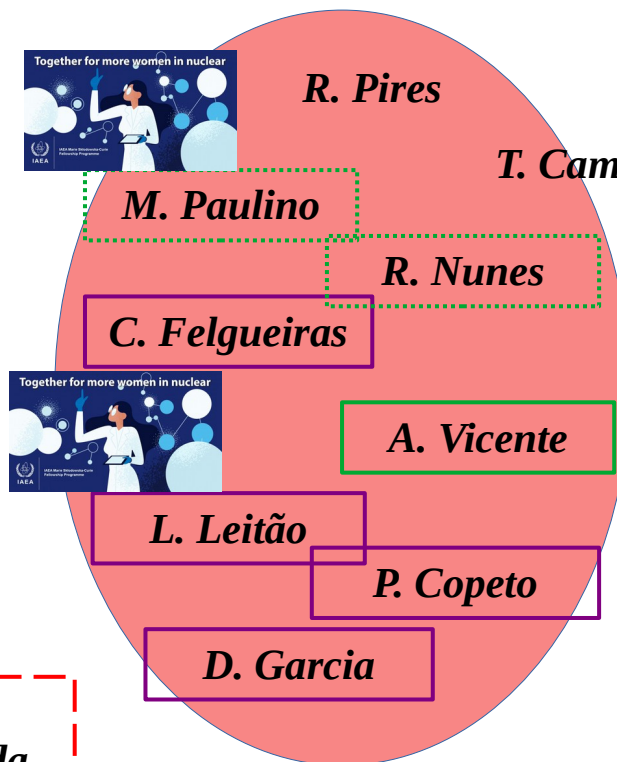
**Senior**



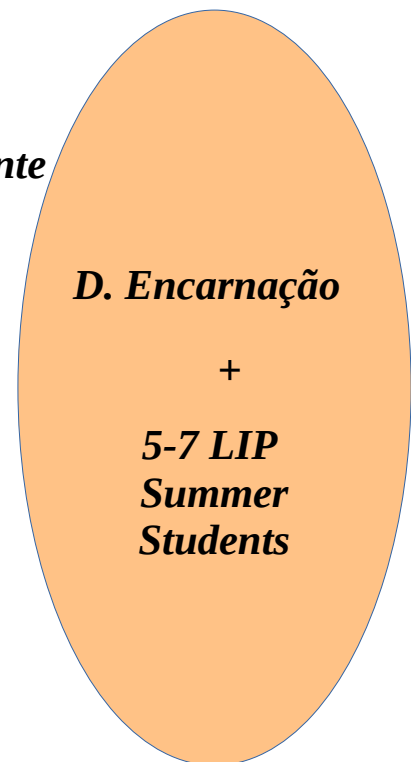
**Ph.D.**



**M.Sc.**



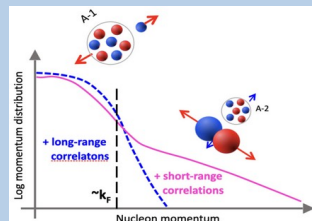
**B.Sc.**





## Physics @ R<sup>3</sup>B

- Finish analysis on **SRCs** on exotic nuclei (PhD Thesis **M. Xarepe**)



- **Light ion** measurement using tRPCs: experiment **S249** (M.Sc. Thesis **P. Copeto**)



- Preparations for 2026 campaign:  ${}^3_{\Lambda}\text{H}$

## Nuclear Astrophysics

### Nuclear Reactions



- ★ Grant Application for **ISRS ISOLDE-CERN**
- ★ Experiment preparations at **INFN/LNS** (2025/26)
- ★ Target developments: **fundamental** and **applied** sciences



### Explosive Modelling

- **r-process nuclei** production in Kilonovae
- ★ **Atomic parameters** for non-LTE modeling
- ★ **PhD and M.Sc. Thesis** ongoing
- Explosive **nuclear reaction network** studies (collaboration with Konkoly Observatory, Budapest)

## Strength

- Strong **international collaboration** experience.
- Expertise in instrumentation, data analysis, particle transport simulations, and nuclear astrophysics.
- Proven track record of participation in **experiments** at various radioactive and stable beam accelerator institutes.
- Combination of experimental and theoretical work

## Opportunities

- International participation offers visibility and potential to attract **young researchers**.
- Opportunities to expand current collaborations to other institutes.
- Participation in **International Networks** (EUROLabs, ChETEC-Infra, IANNA,...) offers growth opportunities.

## Weaknesses

- **Limited funding**, which may prevent the group from effectively contribute to the construction of new detection systems in international collaborations.
- **Limited** number of **senior researchers**, with strong teaching commitments.
- Lack of postdoctoral researchers in the group

## Threats

- Inability to effectively participate in next-generation facilities like **FAIR** or **ISOLDE** may endanger future involvement.
- Lack of funding may be an obstacle to student retention and recruitment of senior researchers, hindering group growth and sustainability.