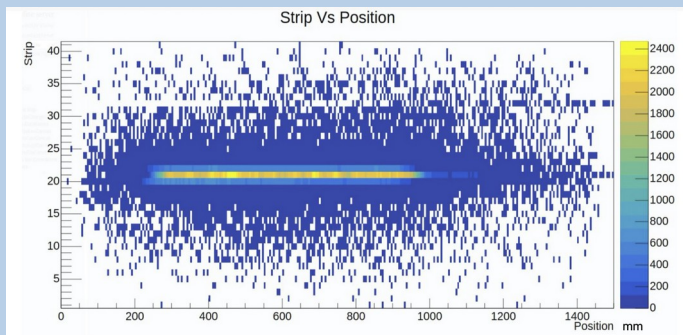


## Short-Range Correlations @ R<sup>3</sup>B

- Preparations and execution of R3B/FAIR Phase-0 Experiments including the RPC



- ★ Start analysis of **SRC Data**
- ★ Consolidate **LIP** within the **R<sup>3</sup>B** collaboration at **FAIR**

## Nuclear Astrophysics

### Nuclear Reactions



- ★ **IS698** Experiment **preparation** and possibly **execution**
- ★ Seek funds for **Ph.D. candidate** (F. Barba)

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- ★ **Furhter work on** (p,γ) reactions (M.Sc. R. Pires)

### Explosive Modelling

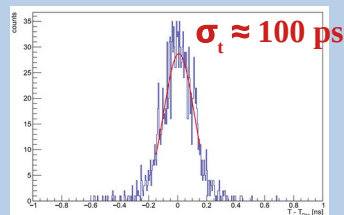
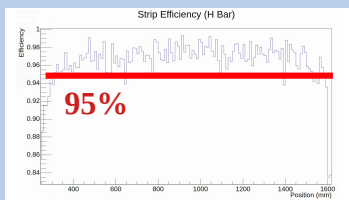
- Application to **FCT project** call for this line of research
- ★ Seek funds for **Ph.D candidate** (R. F. Silva)

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- Advance on **nuclear data impact** studies for *nuclear astrophysics* (M.Sc. A. Jantarada)

## Short-Range Correlations @ R<sup>3</sup>B

- Experiment S522 (SRCs on <sup>16</sup>C and <sup>12</sup>C) **successfully executed!**



- ★ RPC calibration and of **SRC Data analysis** (M. Xarepe's PhD)
- ★ **CALIFA** calibration with **cosmic rays** (M.Sc. T. Sousa)
- ★ Insert **RPC** in the present **R<sup>3</sup>B standard setup**
- ★ Consolidation of **LIP** within the **R<sup>3</sup>B** collaboration at **FAIR**

## Nuclear Astrophysics

### Nuclear Reactions



- ★ **IS698** Experiment **preparation** and possibly **execution**

- ★ Seek funds for **Ph.D. candidate** (F. Barba)

- ★ **Furhter work on** (p, $\gamma$ ) reactions (M.Sc. R. Pires)

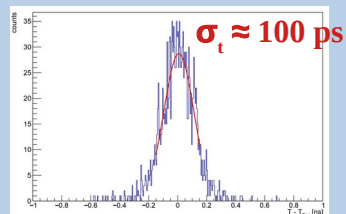
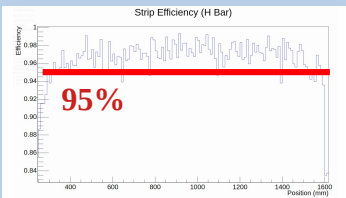
### Explosive Modelling

- Application to **FCT project** call for this line of research
- ★ Seek funds for **Ph.D candidate** (R. F. Silva)

- Advance on **nuclear data impact** studies for **nuclear astrophysics** (M.Sc. A. Jantarada)

## Short-Range Correlations @ R<sup>3</sup>B

- Experiment S522 (SRCs on <sup>16</sup>C and <sup>12</sup>C) **successfully executed!**



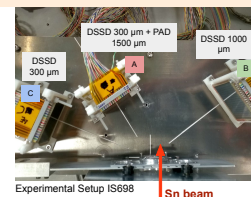
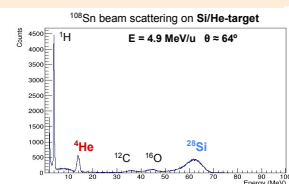
- ★ RPC calibration and of **SRC Data analysis** (M. Xarepe's PhD)
- ★ **CALIFA** calibration with **cosmic rays** (M.Sc. T. Sousa)
- ★ Insert **RPC** in the present **R<sup>3</sup>B standard setup**
- ★ Consolidation of **LIP** within the **R<sup>3</sup>B** collaboration at **FAIR**

## Nuclear Astrophysics

### Nuclear Reactions



- ★ **IS698** Exp. **scheduled and executed.**
- ★ Data analysis started (F.G. Barba's **PhD grant**)



- ★ **Furhter work on (p,γ) reactions** (M.Sc. R. Pires)

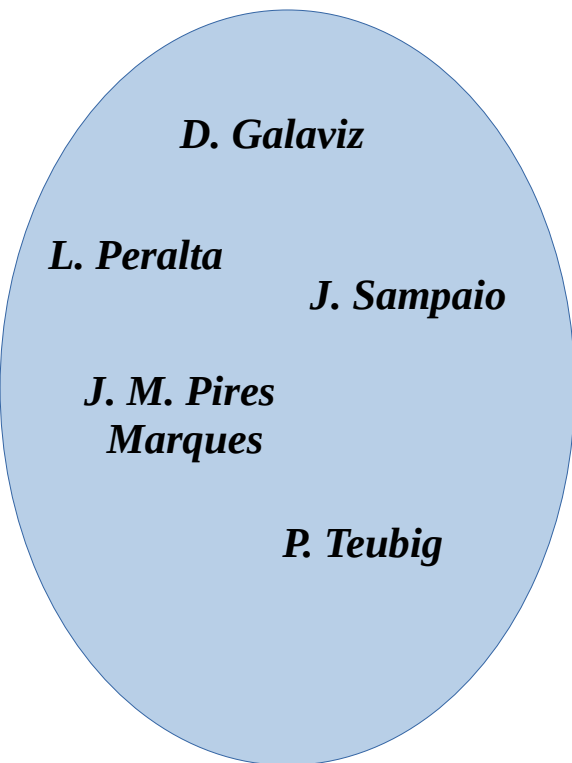
### Explosive Modelling

- ★ FCT project **ATOMIK approved!**
- ★ R. F. Silva's **Ph.D started**
- 
- ★ **Nuclear data impact studies for N.A.** (M.Sc. A. Jantarada)

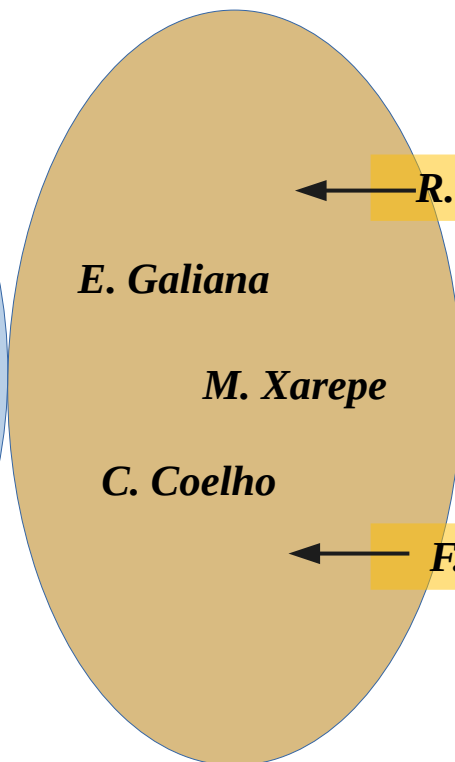
Joined Target Working group



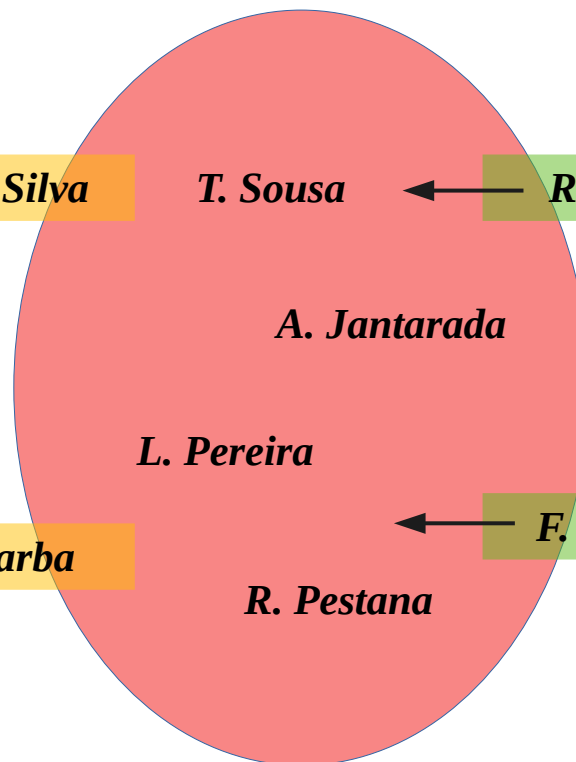
## Senior



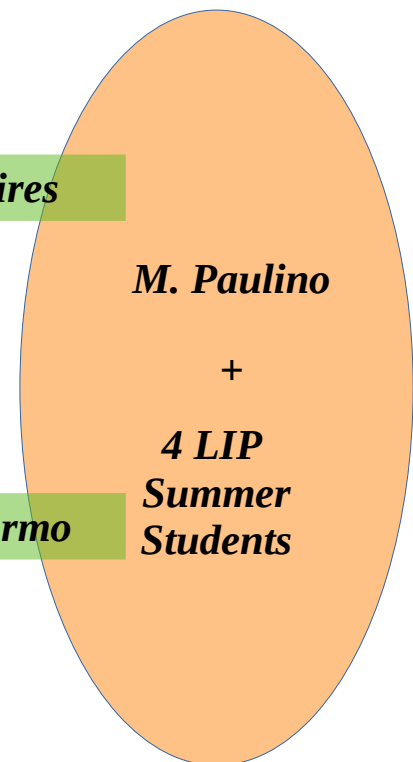
## Ph.D.



## M.Sc.



## B.Sc.



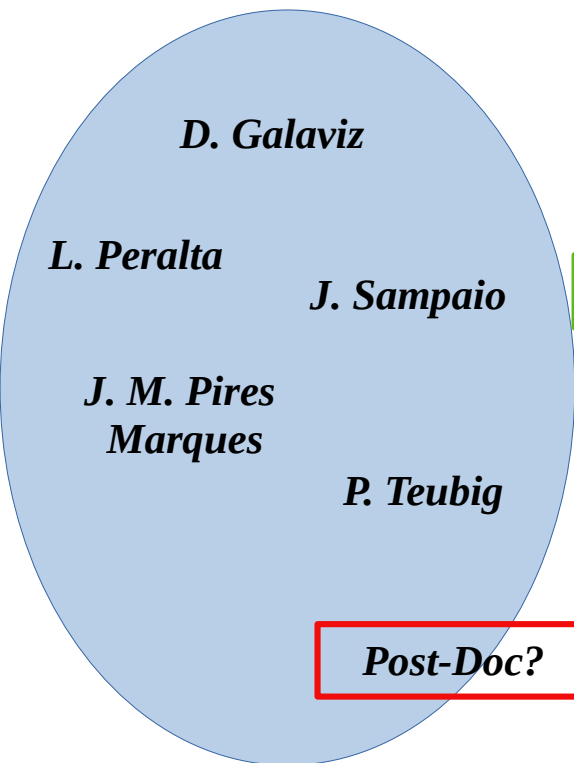
*R. F. Silva*

*R. Pires*

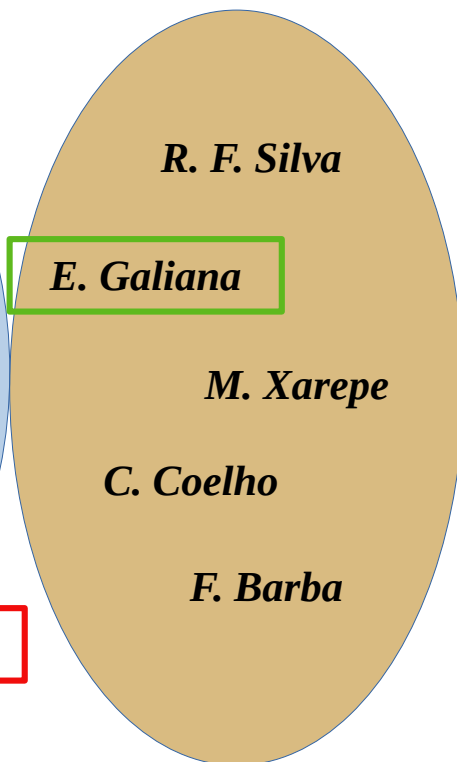
*F. Barba*

*F. Carmo*

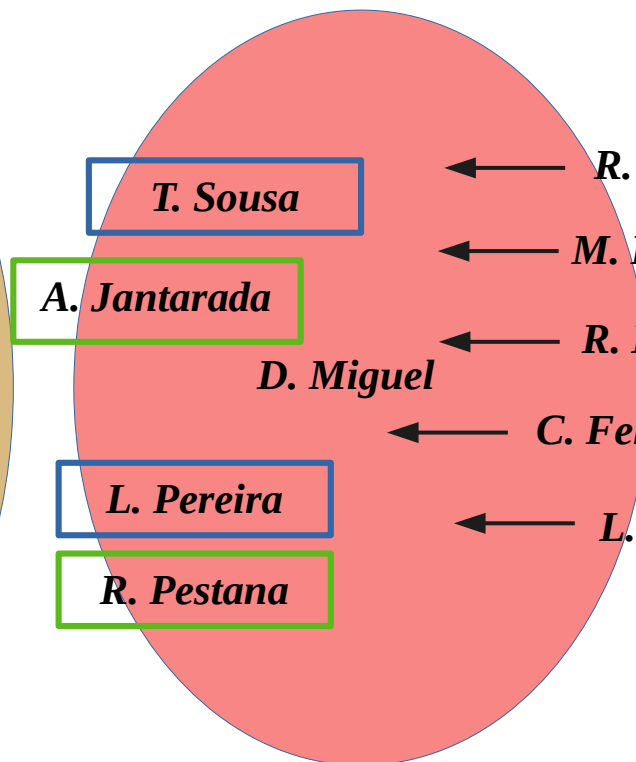
## Senior



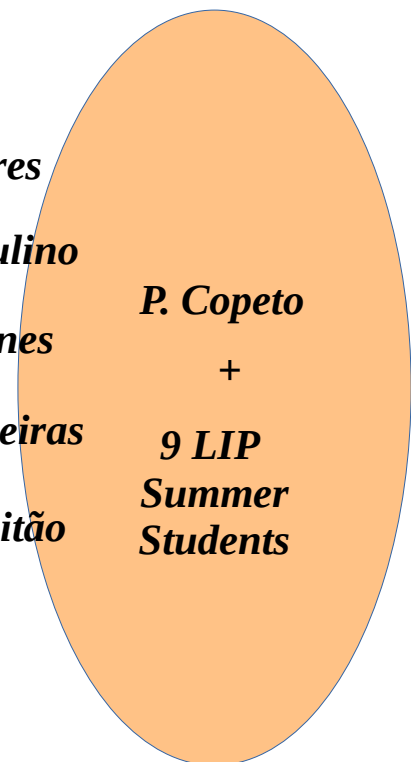
## Ph.D.



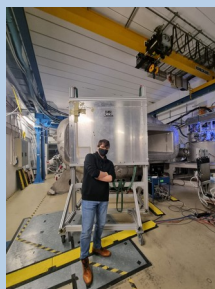
## M.Sc.



## B.Sc.



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



- **RPC** inserted in *standard* R<sup>3</sup>B setup (until moving to new exp. cave) for high-E proton detection
- Contribute to preparations for **2024** Physics campaigns
  - ★ SRCs on clustering
  - ★ Assymmetric EoS
  - ★ Hypernuclei
- Work on Proton Arm Spectrometer (PAS) concept based on RPCs

## Nuclear Astrophysics

### Nuclear Reactions



★ Further **involvement** in ISOLDE-CERN

★ **Proposals for small scale facilities:** (Seville-Debrecen-Lisbon)

★ **Target developments for radioactive ion beam facilities**



### Explosive Modelling

- Atomic Structure calculations for Kilonova modeling
- ★ Collaboration with **ERC grantee** (G. M. Pinedo)
- ★ **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 EUROLabs, ChETEC-Infra, and a potential COST action in Nuclear Astrophysics 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.