

# **Progress and results of the NP INEL project**

*2017-2019*

## **Progress during 2017**

- The targets for the  $^{24}\text{Mg}(p,p'\gamma)$  and the  $^{58}\text{Ni}(n,n'\gamma)$  experiments were prepared
- Theoretical calculations were performed to estimate the cross sections and to infer the necessary beam time.

## **Progress during 2018**

### **The $^{58}\text{Ni}(n,n'\gamma)$ experiment:**

- Data taking was finalized and preliminary data analysis is ongoing.

### **The $^{24}\text{Mg}(p,p'\gamma)$ experiment:**

- The experiment was approved by the Proposal Advisory Committee of the 9 MV Tandem accelerator of IFIN-HH,

- The preparation of the experimental setup continues,
- The measurement was performed in September 2018.

### **The $^{58}\text{Ni}(p,p'\gamma)$ experiment:**

- The experiment was approved by the Proposal Advisory Committee of the 9 MV Tandem accelerator of IFIN-HH,

- The measurement was scheduled for February 2019.

### **Other activities linked to the project:**

- In July 2018 Marian Boromiza, member of the research team, defended his PhD thesis with the title: "Nucleon inelastic cross sections on  $^{16}\text{O}$  and  $^{28}\text{Si}$ ".

The subject of the thesis is directly linked to the field of the current project. The examination committee decided to grant the PhD title to the candidate considering his work as "excellent".

## **Progress during 2019**

### **The $^{58}\text{Ni}(n,n'\gamma)$ experiment:**

- Data analysis was finalized.
- The interpretation and the dissemination of the results is ongoing.
- The preliminary results were presented by A. Olacel at the most important conference in the field of nuclear data (2019 International Conference on Nuclear Data for Science and Technology, May 19-24, 2019, Beijing, China).

### **The $^{24}\text{Mg}(p,p'\gamma)$ experiment:**

- Preliminary data analysis is ongoing.

### **The $^{58}\text{Ni}(p,p'\gamma)$ experiment:**

- Data taking was finalized. Preliminary data analysis is ongoing.

### **Other dissemination activities**

- In May 2019 our group participated to an interview that will be part of an outreach movie made by the Joint Research Center presenting a “success story” of european scientist performing experiments at GELINA neutron source.
- An article comparing  $(n,n'\gamma)$  and  $(p,p'\gamma)$  data on  $^{16}\text{O}$  and  $^{28}\text{Si}$  and presenting the method used in the present analysis was submitted to Physical Review C (by M. Boromiza).
- An invited talk was given by A. Negret at the *2019 International Conference on Nuclear Data for Science and Technology, May 19-24, 2019, Beijing, China* presenting the latest  $(n,n'\gamma)$  results obtained by our group.
- M. Boromiza presented  $^{16}\text{O}(n,n'\gamma)$  data at the *2019 International Conference on Nuclear Data for Science and Technology, May 19-24, 2019, Beijing, China*.