

## COLLABORATION AGREEMENT

### IN2P3 - COPIN

#### I. Identification of the laboratories

Partner	COPIN
IN2P3 laboratories	IJCLab
Partner laboratories	University of Warsaw, Heavy Ion Laboratory University Maria Curie-Skłodowska, Lublin

#### II. Identification of the collaboration

Title of the collaboration	Study of isomeric states in nuclei; Alpha and cluster emission from exotic isotopes
Number of the collaboration	15-149
IN2P3 spokesperson	C. PETRACHE
COPIN spokesperson	J. SREBRNY
Scientific Domain	Nuclear Physics

#### Status of the collaboration

Status	The renewal of the collaboration is requested for the period January 1st - December 31st, 2023
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#### III. Status report for the period January 1st to December 31st, 2022

##### III.1 IN2P3 scientists in COPIN

Total time approved for 2022	21
Total time used for 2022	8
List of scientists	1. Costel Petrache (8 days)

##### III.2 COPIN scientists in France

Total time approved for 2022	21
Total time used for 2022	0
List of scientists	

##### III.3 Scientific results of the above-mentioned collaboration

Description	
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1. Publication of 2 articles:

- B. F. Lv et al., Physics Letters B824 (2022) 136840: Evidence against the wobbling nature of low-spin bands in  $^{135}\text{Pr}$

- B. F. Lv et al., Physical Review C105 (2022) 034302: Experimental evidence for transverse wobbling bands in  $^{136}\text{Nd}$

2. Approval of the HIL proposal (14 days) (EAGLE+NEDA+Plunger) "Shape coexistence and octupole correlations in the light Xe, Cs and Ba nuclei.

## IV. Renewal of the collaboration for 2023

### IV.1 Proposed scientific program

Description
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- Participation of 2 IN2P3 researchers at the HIL097 experiment (2x14 days=28 days), in which the shape coexistence and octupole correlations in light lanthanide nuclei will be investigated by measuring the lifetimes of low-lying states using the NEEDLE + plunger setup.

- Participation of 1 IN2P3 researcher at the Kazimierz workshop (7 days).

- Visit of 2 Polish researchers in France, 1 from Lublin for theoretical calculations of light lanthanides and 1 from Warsaw to work on the data analysis of the HIL097 experiment (7+14=21 days).

### IV.2 Estimated duration for IN2P3 scientists in COPIN

Total time requested for 2023	35
List of scientists	1. Costel Petrache (7 days) 2. Alain Astier (14 days) 3. Praveen Jodidar (14 days)

### IV.3 Estimated duration for COPIN scientists in France

Total time requested for 2023	21
List of scientists	1. Anna Zdeb (7 days) 2. Grzegorz Jaworsky (14 days)

Comment Validation	
Unity Director	Fadi IBRAHIM (IJCLab) - 2022-09-22 21:08:51