

# COLLABORATION AGREEMENT

## IN2P3 - COPIN

### I. Identification of the laboratories

Partner	COPIN
IN2P3 laboratories	LPC - Caen / IJCLab/LPSC
Partner laboratories	Cracovie (IFUJ)

### II. Identification of the collaboration

Title of the collaboration	n_EDM - Magnetic field calculations and monitoring - Detection and data acquisition
Number of the collaboration	12-146
IN2P3 spokesperson	T. LEFORT
COPIN spokesperson	J. ZEJMA
Scientific Domain	Hadronic and Particle 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	8
Total time used for 2022	0
List of scientists	

#### III.2 COPIN scientists in France

Total time approved for 2022	8
Total time used for 2022	0
List of scientists	

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

Description	
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In 2022, progresses were made on both sides. In France, the activities were the following.

LPC: the internal coil system was installed at PSI. The coils are supplied by the power supplies manufactured by the Polish colleagues (which were all delivered to PSI in 2022). There are two kinds of power supplies. ALL coils were tested and, with both types of power supplies, the results are

excellent: the produced fields are in agreement with expected fields (from COMSOL simulations). They all fulfil the predefined requirements. The spin sensitive detectors were also tested at PSI. The results are still preliminary but show a significant improvement with respect to the previous nEDM experiment.

LPSC: the commissioning of the mapper was performed. Then, it was used to characterize the remnant field, the vacuum tank (searching for possible magnetic contaminations) and the field produced by the coils. The switch was assembled at LPSC and tested with success. It will be installed at PSI in February 2023 (its mechanical support is currently under construction). In addition, the visualisation of the online data and the soft used to perform the online analysis is currently under development.

IFUJ: the development of the acquisition system is still ongoing. The integration of all subcomponents already started and will become more intense in 2023 since many components of the experiment are delivered or about to be delivered. A general collaboration meeting is planned at Krakow in May 2023.

## IV. Renewal of the collaboration for 2023

### IV.1 Proposed scientific program

Description
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In France, we plan to keep on working on the detectors, the spin analysers, the switch, the data visualisation and the online analysis. In Krakow, the colleagues will work on the main acquisition system and its connection to the delivered components. Discussions about the integration of the components in the main acquisition system will be performed during the general collaboration meeting which will take place in Krakow in May 2023.

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

Total time requested for 2023	9
List of scientists	1. T. lefort (3 days) 2. G. Pignol (3 days) 3. S. Roccia (3 days)

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

Total time requested for 2023	9
List of scientists	1. J. Zejma (3 days) 2. K. Bodek (3 days) 3. D. Rozpedzik (3 days)

Comment Validation	
Unity Director	Etienne LIENARD (LPC) - 2022-10-18 11:59:16