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#10-268 A complete training program dedicated to nuclear instrumentation at Aix-Marseille University

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Since 2004, the “Filière Instrumentation” unit of the Physics Department of the Faculty of Sciences at Aix-Marseille University has been collaborating with the CEA to develop different education activities on the topic of nuclear instrumentation. These activities involve also several partners such as EDF, IEEE NPSS, international nuclear centers (SCK-CEN in Belgium, NCBJ in Poland, CNESTEN in Morocco) and other key international partners such as the Nuclear Reactor Laboratory of the MIT in USA and the Jozef Stefan Institute in Slovenia. These activities benefit from a strong recognized research activity carried out in the framework of the IM2NP laboratory and the joint laboratory LIMMEX with the CEA.

The presentation will deal with these different activities and detail the three most recent in particular:

- A speciality dedicated to test facilities instrumentation. It was developed in collaboration with the CEA in 2004. It is now a diploma co-delivered by AMU and the national nuclear science and technology institute of CEA INSTN. It is part of the master's degree in Instrumentation, Measurement and Metrology (IMM) and more recently is integrated into the graduate school of a new institute created by AMU in July 2019 called ISFIN (Institute for fusion sciences and Instrumentation in Nuclear environments);
- A summer school EFMMIN “Ecole Franco-Marocaine de la Mesure et de l'Instrumentation Nucléaires” since 2010. It is a two-year summer school co-organized with the CEA, the CNESTEN, the Sciences Faculty of the Mohammed V University and the AMSSNUR. After editions devoted to research reactors, the fuel cycle, decommissioning, medicine and the environment, and safety, the next edition will focus on innovation in nuclear sensors and detectors;
- A mobility program called MOBIL-APP since 2018. It is labelled and funded by the Excellence Academy of the A*MIDEX foundation promoting pedagogical innovation, improvement of existing training and international attractiveness. This program concerns the outgoing international mobility of block-release apprentices preparing the IMM master's degree. It consists in selecting, preparing and sending a group of block-release apprentices for 2 weeks per year to a partner. The two groups realize visits to reactors, laboratories and companies, participate in seminars, short courses, experimental projects and workshops together with local students, visit cultural places and prepare an activity report in English;
- A new international specialty. It is currently in the process of being set up administratively and pedagogically. This new course will belong to the IMM master's degree and to the new ISFIN institute. It will be dedicated to nuclear instrumentation and measurement for major nuclear research facilities in the fusion and fission fields such as MTRs and tokamaks (for instance the Jules Horowitz Reactor and ITER located in the South of France, 70 km from Aix-Marseille University). This specialty will involve several international partners. For instance the Nuclear Reactor Laboratory of the MIT will carry out training courses, seminar and practice exercises. The students will have to do internships in international facilities after a project realized at Aix-Marseille university labs;
- A student branch and a chapter dedicated to nuclear instrumentation and associated to IEEE NPSS. It is in the process of creation with about 30 students.

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