

## Postdoctoral Research Position in Microelectronic and Analog Integrated Circuit Design

### Mission:

Understanding transport of plasma is one of the main issues for ITER, the international tokamak being built in Cadarache (France) to demonstrate electric power production feasibility by magnetic fusion energy ([www.iter.org](http://www.iter.org)).

A\*Midex (initiative d'excellence Aix-Marseille) supports 4 research projects in the field of fusion and DEmON (Diagnostics pour les Etudes de transpOrt dans un plasma de FusioN) is one of the selected projects supported by the AAP « Emergence and innovation – Fusion ».

Two laboratories of the Aix Marseille University (PIIM and CPPM) and the IRFM (Institut de Recherche sur la fusion par confinement Magnétique) at CEA-Cadarache will collaborate to develop and exploit diagnostics system allowing control, evaluation and optimization of the plasma inside the machine.

The CPPM is responsible of the X-ray imager development designed to perform precision measurements on various plasma parameters. This imager is based on the principle of hybrid pixels used in the field of high energy physics. Particularly, the CPPM should design and test the readout integrated circuit, composed of pixel matrices. This ASIC requires a high level of integration, low power consumption and very low noise level to achieve a detection threshold below 3 keV.

The available position stands in the area of integrated circuit design and the candidate will conduct research work in the framework of this project. He will be responsible for defining, designing and testing the pixel readout circuit.

### Candidate:

Applicants should have a PhD in physics or electronics. Applicants to a PhD student position may be considered under certain conditions.

Applicant should have demonstrated:

- Good knowledge of microelectronics and circuit design, low noise analog circuit design
- Knowledge of mixed-signal design rules (Analog / Digital)
- Knowledge of digital modeling languages (VHDL-Verilog, ...)
- Knowledge of principles and specification rules of electromagnetic compatibility
- Experience with deep submicron CMOS technologies such as 130 nm or 65 nm
- Experience with design tools, simulation, design and verification of analog ASICs
- Experience of experimental verification, designing test systems, acquisition and data processing
- Experience in research and work presentation and documentation

The post-doc position is for two years and the candidate will work at Centre for Particle Physics of Marseilles (CPPM) [www.cppm.in2p3.fr](http://www.cppm.in2p3.fr)

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