



Internal



OPEN POSITION

Postdoctoral Researcher for the Medical Physics Group

Opening Date: **March 22, 2024**

Closing Date: **Until Filled**

Ref:IFAE2024/12_PD_MFG

About IFAE

The Institut de Física d'Altes Energies (IFAE) is a public consortium of the Generalitat de Catalunya, the Autonomous Government of Catalonia, and the Universitat Autònoma de Barcelona (UAB, a public university) whose main objective is to carry out research and to contribute to the development of high energy physics from a theoretical, experimental and technological point of view. IFAE has the status of a "University Institute" attached to the UAB and its premises are within the campus of the University. IFAE is also part of the Barcelona Institute of Science and Technology (BIST), an institution of scientific cooperation of seven top research centers committed to creating a collaborative environment of multidisciplinary scientific excellence by fostering collaboration among members of its diverse scientific community.

About Medical Physics group

The Medical Physics Group at IFAE is focused on the development of detector technologies for ionizing radiation. For the last 30 years, it has been working on the application of novel pixel detector technologies for X-ray, PET, and SPECT through

European (ERC) and national funded projects. Since the advent of Timepix2, IFAE is part of the Medipix Collaboration at CERN and has actively contributed to the development of both Medipix3 and Medipix4/Timepix4 chips. The IFAE Medical group is presently collaborating with the nearby Institute of Microelectronics of Barcelona (IMB-CNM) within the SOFTPIX project. A project that aims at building an innovative detector for soft-x rays combining the capabilities of the Timepix4 chip and the novel Low Gain Avalanche Detector (LGAD) technologies developed at IMB-CNM. Moreover, IFAE has direct access to the cutting-edge technology developed in international fundamental physics research collaborations such as ATLAS, K2K, and CTA, fully available in-house resources for the integration of high-density pixel detectors, and a team of engineers that provides a unique environment to carry out ambitious projects in this field.

What will be your role?

You will be joining the effort of the Medical Physics Group at IFAE for the development of a readout system to operate the Timepix4 chip. You will contribute to the characterization of the first SOFTPIX detector prototypes employing the novel AC-LGAD and n-LGAD technology. In the specific:

You will work on the design of a readout software for the operation of hybrid pixel detectors with Timepix4, and the optimization for different experiments in medical physics and synchrotron applications.

You will supervise PhD students and contribute to the LGAD detector prototypes characterization with radioactive sources and x-rays in the IFAE laboratories as well as at synchrotron facilities.

You will contribute to the scientific analysis of the data obtained in the laboratory and testbeam experiments.

You will be able to present on international conferences, at Medipix meetings and publish in international journals.

You will be working in close contact with the sensor experts at IFAE and IMB-CNM and the chip experts of the Medipix Collaboration. You will be profiting from the well-established international network of IFAE and from IFAE's close contacts with

other research centers in Barcelona such as IMB-CNM and the ALBA synchrotron.

Required skills

The successful candidate is expected to have:

A Doctorate (PhD) or equivalent degree in physics, (electronic) engineering or a closely related discipline.

Knowledge of Linux and strong programming skills (C/C++ and/or Python).

Previous experience in detector R&D and/or readout system development.

Excellent English communication skills.

Evaluation criteria:

Applications of candidates fulfilling the required skills will be evaluated according to the following criteria:

Scientific excellence based on the CV and recommendation letters: 30 points

Adequation and interest for the offered position: 25 points

Software skills: 25 points

Previous experience on the field: 20 points

Offered contract:

Full time contract (40 hours/week). Indefinite contract for scientific-technical activities (article 23 bis of Law 14/2011, of 1 June, on Science, Technology and Innovation), linked to the project "Electrónica de lectura de alta velocidad del ASIC TIMEPIX4 para detección e imágenes de Rayos X blandos" with reference PID2020-11827RB-C21. IFAE Professional category: "Investigador(a) postdoctoral (R2)". Salary will be commensurate with experience and qualifications within the corresponding category range. The selected candidate is expected to join IFAE as soon as possible.

Application and Selection process:

Applications should be submitted to Dr. Stefano Terzo (sterzo@ifae.es) and/or Dr. Gerard Ariño (garino@ifae.es) stating the job reference (IFAE2024/12_PD_MFG) as the subject of the message. The email should include their updated CV, a letter of motivation, and arrange to have two letters of reference sent independently to the same addresses. Sending CVs to the above addresses implies consent to the IFAE's legal warning on data privacy.

A Selection Committee will evaluate the received applications. If more than one candidate seems equally suitable for the position, the Selection Committee will arrange an on-line interview with each one of them as part of the Selection process.

According to the laws affecting the public sector, priority will be given to candidates fulfilling the required skills with a current labour relationship with any of the Administrations of the consortium (Generalitat de Catalunya and Universitat Autònoma de Barcelona).

IFAE is an equal opportunity employer committed to diversity in the workplace and social integration of people with a disability. We welcome applications from all qualified candidates. People from groups that are typically underrepresented in the labor market in general and in Science and Engineering in particular, such as women, minorities, or people with a disability, are particularly encouraged to apply.

You may contact Dr. Stefano Terzo (sterzo@ifae.es) and/or Dr. Gerard Ariño (garino@ifae.es) for any questions related to this job opening.

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