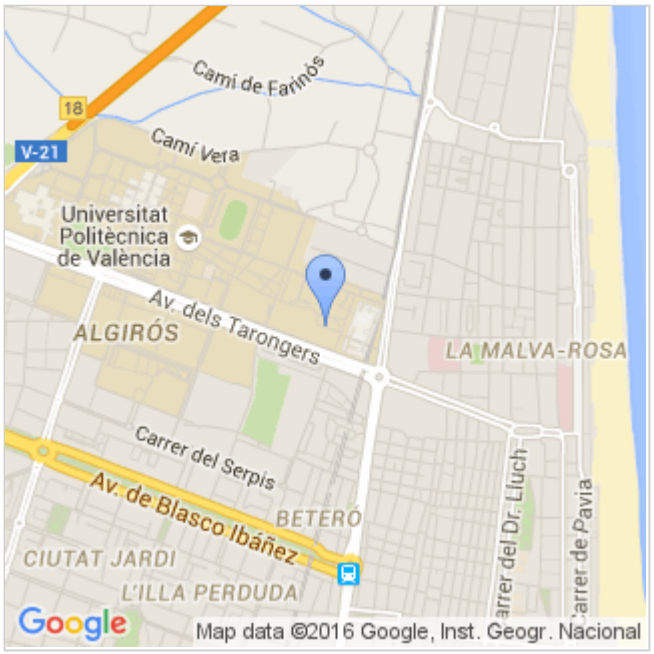
Expression of Interest



Contact Person/Scientist in Charge

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Universitat Politècnica de València (UPV)

Department / Institute / Centre

- **Name:** Institute for Instrumentation in Molecular Imaging (I3M) - Universitat Politècnica de València
- **Address:** Campus de Vera; Camino de Vera, s/n; Valencia (46022)
- **Province:** Valencia

Research Area

- Physics (PHY)

Brief description of the institution:

Universitat Politècnica de València (UPV) is the single Spanish Technical University that features in the main University world rankings. It is within the top 5 Spanish Universities with the highest revenue from both public research and knowledge transfer activities, and a national leader in patent license income and start up creation. Constituted in 1971, it comprises nearly 30.000 students, over 2500 academics, and 17 university research centres of excellence.

UPV has a relevant experience in the participation in international research programmes, with over 100 FP7 projects and 40 H2020 projects in the period 2014-2015. UPV researchers are also actively involved all H2020 life program stages, from workprogramme drafting discussions, to project coordination. It is also taking part in several major partnering initiatives (JTIs, PPPs, KICs…).

Brief description of the Centre/Research Group (including URL if applicable):

Our group at I3M, institute of CSIC and Polytechnic University of Valencia, has over 15 years of experience in detector development such as sensors and systems for medical imaging. Since 2012, the institute is involved in proton acceleration experiments with highly intense, femtosecond lasers. With a 2 TW, table-top system developed by a private collaborator we have been the first research group in Spain demonstrating laser-accelerated protons. In this context, our contribution focuses on detectors for the spectral characterisation of particles with MeV energies.

Project description:

Acceleration of protons and ions by highly intense laser pulses

Proton and ion acceleration in ultra-intense laser-plasma interactions is a very active research field with strong European contributions. With its strong acceleration gradients, producing multi-MeV particles on micrometer lengths, the underlying processes are considered a key technology for future accelerators at all energy scales. Since 2012, I3M has participated in the setup of the first laser-proton experiments in Spain. We have developed and tested several kinds of particle detectors for the spectral characterisation of protons and ions. The first proton acceleration experiments have been successfully accomplished with a 2 TW, 100 Hz table-top laser. At present, we are involved in experimental campaigns with increased laser power. In the near future, our aim is to optimise the laser target design in order to reach sufficiently high proton energies for practical applications of this technique.

Applications

CV, letter of motivation; no strict deadline