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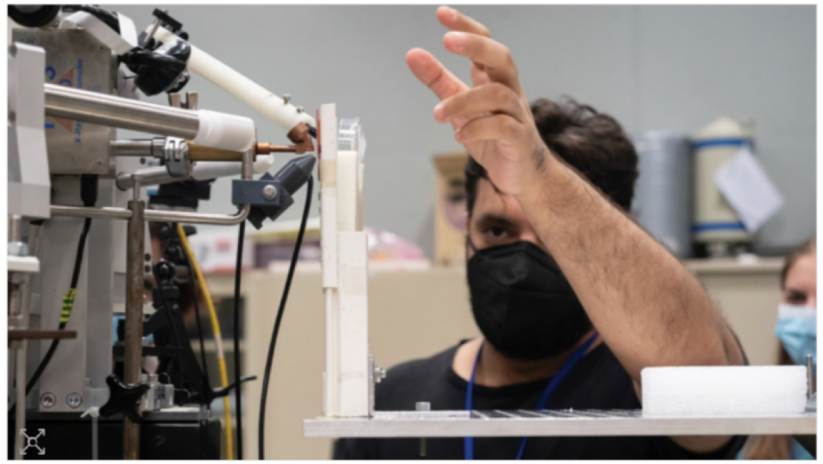
APPLICATIONS | MEETING REPORT

Fostering cross-disciplinarity

14 July 2022



Lab work Setting up a beam for irradiating biomaterial. Credit: INFIERI

Despite several COVID waves, the organisers of the 6th edition of the International Summer School on Intelligent Signal Processing for Frontier Research and Industry (INFIERI) made this school an in-person event. The INFIERI school was successfully held at UAM from August 23 to September 4 thanks to the unprecedented speed of the vaccine roll out, the responsible behaviour of the school participants and the proper applied logistics.

Against a backdrop of topics ranging from cosmology to the human body and particle physics, the programme covered advanced technologies such as semiconductors, deep sub-micron 3D technologies, data transmission, artificial intelligence and quantum computing.

Topics were presented in lectures and keynote speeches, and the teaching was reinforced via hands-on laboratory sessions allowing students to practise applications ir realistic conditions across a range of areas, such as: theoretical physics, accelerators, quantum communication, Si Photonics and nanotechnology. The latter included medica applications to new mRNA vaccines, which have long been under investigation for cancer treatment, besides their use against COVID-19. For instance, they could analyse combined real PET/MRI images using machine-learning techniques to find biomarkers of illness in a hospital setting, or study the irradiation of a biomaterial using a proton beam. Worldwide experts from academia, industry and laboratories such as CERN either gave lectures or ran lab sessions, most of them attending in person, often for the entire duration of the school.

During the last day, the students presented posters on their own research projects – the high number and quality of presentations reflecting the cross-disciplinary facets and the excellence of the participants. Many were then selected to be part of the in-preparation proceedings of the *Journal of Instrumentation*.

The next INFIERI school will only offer in-person attendance, which is considered essential to the series, but if the pandemic continues it will exploit some of the learning gained from the 6th edition.

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