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## PRESS RELEASE

### **CERN presents high-readiness level technologies at IEEE NSS/MIC in Atlanta, USA**

CERN technologies with high TRL (Technology Readiness Level) were presented during the Technology Transfer Programme of the IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC) that took place in October 2017, in Atlanta, USA.



The programme was co-organised by HEPTech, CERN and Siemens, in a poster format with scheduled pitches and was attended by more than 500 visitors for 3 days. According to the statistics, 54 people pre-registered to the pitches.

The purpose of the Technology Transfer Programme (TTP) was to give academia the possibility to present to industry technologies that are at a much higher readiness level than those normally showed at the technical sessions of the conference. To be selected for the TTP, the

technologies had to prove availability of solid academic substance and clear IP access conditions, applications and dissemination/commercialisation plans.

Ten posters were exhibited representing mature technologies originating from the USA, Canada and Europe. Seven of the posters visualised CERN's radiation detection, pixel detector and electronic technologies, as well as the Organisation's irradiation facilities and software developments.



Among them were Timepix3 – a general-purpose integrated circuit for read-out of semiconductor and gas-filled detectors that can be applied in x-rays imaging, particle track reconstruction or radiation detection and monitoring; GEMPix – a novel generation of radiation detectors for dose measurements in hadron therapy; NINO ASIC – an ultra-fast and low-power front-end amplifier discriminator ASIC chip for use in applications based on electron and photon detection in medical

imaging, life science or material research; FLUKA - a particle transport simulation code with many applications in high-energy experimental physics and engineering; and RaDoM – a very compact radon detector measuring indoor radiation concentrations rapidly and accurately.

Scientists and industry representatives were surprised and impressed to discover that CERN had technologies with high TRL to offer.

The HEPTech-associated National Institute for Subatomic Physics, Netherlands (Nikhef), presented their Topsy photomultiplier (an assembly of a stack of 5 dynodes, placed on top of a pixel chip, and placed in a vacuum sealed with a window and classical photocathode) looking for industrial partners to further finance the development of commercially interesting devices based on this new technology.

“Industry checked on the availability of some of our technologies (ex. CERN’s NINO) and had in-depth discussions with scientists on possible partnerships (ex. the Topsy technology with one of the leaders on SiPM)”, says Jean-Marie Le Goff of CERN, the Chairman of HEPTech, who was co-chairing the IEEE NSS/MIC 2017 poster sessions together with Charles Watson of Siemens.

Le Goff believes this was the best TTP he organised or attended since Lyon, France, in 2000, when the IEEE NSS/MIC forum moved for the first time to Europe on an annual rotation base. He considers the choice of the format and location of the TT event as particularly strategic for its success. “Last year



in Strasbourg, the workshop format adopted ensured a large attendance (more than 80 persons), but the location and timeslots conflicted with the exhibitors’ programme.

This year, me and Charles Watson, the 2017 Industrial Programme Chair, chose a poster format with scheduled pitches. The technology transfer posters surrounded by scientific posters were located next

to the coffee-break area, just in front of the industrial exhibit. This ensured interactions with the exhibitors and with the academics attending the NSS and MIC poster sessions”, comments Le Goff, explaining that the largest fraction of the technical presentations at this conference are posters.

The IEEE NSS/MIC forum is the main annual event for the detector and electronic community. It is held every year on a rotation base in USA, Europe and Asia-Pacific region attracting more than 1500 participants. Starting in 1996 as a US IEEE Nuclear Science Symposium focused mainly on research, the event evolved over the years, gradually taking on board the application-related medical imaging thus building a technology transfer bridge between science and industry.

**Eleonora Getsova,  
HEPTech Communication Officer**

**Photo credit: Jean-Marie Le Goff, CERN/HEPTech**