

EndoTOFPET-US: A multi-modal endoscope for Ultrasound and Time-of-Flight PET

Dr. Marco Pizzichemi

CERN – Switzerland

The EndoTOFPET-US is a European collaboration that aims to develop a multi-modal imaging tool that combines Ultrasound with Time-Of-Flight Positron Emission Tomography into an endoscopic imaging device. The objective of the project is to obtain a coincidence time resolution (CTR) of about 200 ps FWHM, and to achieve 1-2 mm FWHM spatial resolution for the PET head, while integrating all the components in a very compact detector suitable for endoscopic use. This scanner aims to be exploited for diagnostic and surgical oncology, as well as being instrumental in the clinical test of new bio-markers especially targeted for prostate and pancreatic cancer. In this talk the design of the various detector components developed by the collaboration will be presented, along with their performance characterization. At the same time, the results of the first tests on phantoms and the next steps of the project will be illustrated and discussed.