INFN News

A NEW GENERATION OF PLASTIC SCINTILLATORS THANKS TO 3D PRINTING



Innovative ultrafast plastic scintillators have been created for the first time through 3D printing as part of the research project called SHINE (Plastic Scintillators Phantom via Additive Manufacturing Techniques), funded by the National Scientific Commission 5 of INFN. This important result, recently published in the scientific journal Advanced Functional Materials, was possible thanks to the synergy between research groups from different institutions and universities: in

addition to INFN, CNR Nanotec, CERN and the Universities of Bari, Salento, Padua and Trento. To meet the demand for increasingly performing detectors, the scintillators of the SHINE project were obtained using innovative composite materials based on perovskite powders, appropriately engineered to obtain resins that can be modeled through 3D printing, to perform the different functions required to the detectors. The scintillators of the SHINE project are an important starting point towards new-generation detectors at low cost and with advanced performances of interest both for scientific research in future particle colliders and for applications in other fields such as the medical one.