

Radiation Sensing using Superheated Liquids

Thursday, 23 September 2021 16:10 (10 minutes)

Our group fabricates and develops radiation detectors based on emulsions of superheated liquid droplets in a compatible gel matrix. The operation at reduced superheat renders the devices insensitive to minimum ionising particles that plague a variety of experiments aiming at the detection rare events induced by heavy/ier particles. The superheated emulsion is therefore an excellent tool for the detection of neutrons, alpha particles and heavy ions at low intensity levels. We will provide an overview of our application-oriented research activities in various areas: dark matter search for astrophysics, neutron dosimetry of massively shielded facilities, alpha detection for intrinsic soft error rate assessment in ultra-low activity nanoelectronic devices, alpha spectroscopy of contaminated liquid samples for emergency response and, more recently, colorimetric radiation sensing for radiation protection and public safety.

Scientific Area

New principles and technologies for sensing

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Session Classification: New principles and technologies for sensing

Track Classification: New principles and technologies for sensing