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The influence of neutron radiation damage on the optical properties of polystyrene based scintillator UPS 923A

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Plastic scintillators are vital in the reconstruction of hadronic particle energy and tracks resulting from the collision of high energy particles in the Large Hadron Collider (LHC) at CERN. These plastic scintillators are exposed to harsh radiation environments and are susceptible to radiation damage. The effects of radiation damage on the transmittance, luminescence and light yield of polystyrene-based scintillator UPS-923A are studied at higher fluences, with the possibility of comparison with other new radiation hard materials. Samples are irradiated with fast neutrons, of varying energies and fluences, using the IBR- 2 reactor FLNP (Frank Laboratory of Nuclear Problems) at the Joint Institute for Nuclear Research. Results show the effect of neutron irradiation damage on the plastics, and their relative radiation hardness.

Apply to be
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Yes

Level for award
 (Hons, MSc,
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MSc

Main supervisor (name and email)
and his / her institution

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Would you like to
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Yes

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