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Introduction to ‘Radiation to Materials’: methodologies and examples

Matteo Ferrari, Université Jean Monnet, Saint-Étienne

Abstract:

Despite being sensitive to radiation, polymeric materials such as lubricants, elastomers, insulators, glues are used out of necessity in devices operating in extreme high-radiation conditions. Radiation tolerant materials are fundamental for the development of technological and industrial sectors such as space, particle accelerators, high-power targets, fission and fusion technologies, radioactive waste management. In the talk, concepts of radiation to matter interaction will be recalled and a general overview on radiation effects in materials will be presented, as well as methodologies to perform rigorous irradiation and post-irradiation characterizations. Multi-scales and multidisciplinary approaches to irradiation tests will be correlated to real-life applications.

Short Bio:

Matteo Ferrari is a scientist with a diversified background and multidisciplinary expertise, including radiation effects, dosimetry, simulations, and medical physics.

His studies includes a Master in Physics at UniPv (Italy) and a Ph.D. in Mechanical Engineering, in a collaboration between UniBs (Italy) and the ESS project (Sweden), focused on radiation effects in lubricants and elastomers. He further developed ‘Radiation to materials’ activities during a fellowship at CERN, linked to the R2E Project.

He currently is Professor at UJM Saint-Étienne (France) in the *Hubert Curien* Laboratory, working on dosimetry based on optical systems and radiation effects in materials and photonics.

Organizers: