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Radiation effects on HTS: improved pinning vs. pair breaking

Thursday 16 January 2025 08:30 (20 minutes)

The first part of the talk will summarize the physics behind the changes of the superconducting properties upon radiation. The introduced defects enhance flux pinning and scattering of the charge carriers. The implications of these two effects on metallic and high-temperature superconductors will be compared. While the change in pinning is currently difficult to predict, the influence of the increased scattering rate can be modelled by a recently proposed model.

The second part of the talk will outline possibilities of a reliable prediction of the performance change in mixed radiation environments by benchmarking experiments or numerical calculations or combinations of them.

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Session Classification: Modelling of radiation effects in superconductors