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Tough Epoxy Systems for the Impregnation of (Future) High Field Superconducting Magnets

The following work addresses improvements of the resin impregnation systems with the goal to overcome field limiting effects occurring during training like micro-cracks, plastic events, or delamination. A current cooperation between ETH Zürich, Paul Scherrer Institute and CERN, embedded in the CHART (Swiss Accelerator Research and Technology) initiative, aims at the development of tough epoxy systems suited for the impregnation of future high field superconducting magnets. In the first project period a baseline is established by the characterization of three technically relevant systems (CTD-101K, Mix61, MY750/HY5922) that are compared with

regards to their mechanical and processing properties at room temperature which will be transferred to liquid nitrogen/helium temperatures in the upcoming project period.

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