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Electrical Insulation for Magnets

Saturday 25 November 2023 08:30 (1 hour)

Magnets for particle accelerators are electrical machines subjected to severe operating conditions such as extreme temperatures, radiations, high mechanical stresses, and in certain cases high voltages. A robust electrical insulation is vital to guarantee a high reliability and availability of the accelerator machines. This lecture aims to provide an overview of the most common electrical insulation systems for magnets, the testing techniques and the basics that drive the design choices. In addition, it is discussed the breakdown mechanisms that characterize the main dielectric media: gas (and vacuum), liquids and solid dielectrics.

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