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Cryogenic cooling options for radiation testing

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Low temperature environments are vital for radiation testing of materials used in accelerator components. The cryogenic environment can either be established by immersion in a cryogenic fluid like Helium or in a dry manner by using cryocoolers as cooling source. The operation of helium cryostats requires frequent refill via long distance transfer lines. A direct cooling with cryocooler platforms is not in all cases possible due to the high level of radiation and possible degradation and activation of materials in the cryocooler and its vicinity. Novel concepts of He circulation loops cooled by the cryocooler at some distance would overcome such limitations. The presentation will compare existing tests stand from CERN and introducing the novel concept of remote cooling loops.

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