

CRYOMODULES FOR ENERGY-RECOVERY LINACS

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Abstract

As transformational as the science with future Energy-Recovery Linacs will be, as manifold are the resulting challenges for accelerator science and technology. The driving engines of these particle accelerators are superconducting linacs, with planned total energy gains of up to several GeV. Continuous cavity operation at 15 to 20 MV/m and envisioned beam currents of 100 mA and above are outside of present state-of-the-art. Significant R&D effort has been started at several institutes to develop superconducting cavity cryomodules supporting these parameters. Challenges include among others emittance preservation of high current, very low emittance beams, strong Higher-Order-Mode damping with very efficient HOM-power extraction, efficient CW cavity operation as well as high RF field stability. This paper/talk gives an overview of activities in this very exciting and challenging application of superconducting RF.

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