An Approach towards Developing Cryomodule for Indian SNS

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Abstract

Cryomodule is the basic building block of the superconducting LINAC based on SRF technology to be used for Indian Spallation Neutron Source (ISNS). At RRCAT, subsystems of such a cryomodule have been taken up for designing. A cryomodule has to mechanically support the cavities and provide suitable cryogenic environment (2K or 4K) for its operation. A cryomodule for Spallation Neutron Source has to be designed such that certain essential requirements such as high availability/ reliability and easy maintainability are fulfilled. This necessitates that the design should permit easy disconnection both from the beam line and the cryogen distribution system for maintenance. This paper describes the requirements of such a cryomodule and the manner in which these can be addressed during the design process. Engineering design of subsystems like, cavity support system and cryogenic support post has been discussed. The paper further illustrates the proposed Cryomodule Component Test Rig (CCTR) which is being designed to test cryomodule subsystems at cryogenic conditions. This test rig will also provide an experimental facility for evaluating certain value engineering concepts.