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## DEVELOPMENT OF AN EXPERIMENTAL SETUP FOR EFFECTIVE THERMAL CONDUCTIVITY STUDIES OF INSULATIONS BETWEEN 77K AND 300K

### Content :

Thermal insulation is an important aspect of any cryogenic system. The choice of a given insulation for a specific application depends on various factors, such as effectiveness of the insulation, the cost, easiness of application etc. The data on the thermal conductivities of several insulations at cryogenic temperatures are not available in the literature.

Towards the above, we have designed and fabricated an experimental set up to determine the effective thermal conductivity of cryogenic insulations between 77 K and 300 K. In this set up, the insulation under study is positioned between a heater and a 77 K surface formed by a liquid nitrogen vessel, inside a vacuum chamber. The effective thermal conductivity of the insulation is determined by the measurements of temperature of the heater, applied heat load and the evaporation rate of liquid nitrogen from the LN<sub>2</sub> vessel. The design, fabrication of the setup and the preliminary experimental results of thermal conductivities of some sample insulations are presented here.

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