Measurement of contact thermal conductance at cryogenic temperature

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The cryogenically cooled monochromator silicon crystals are in routine operation at SPring-8 undulator beamlines. The Si crystal is designed to be cooled in contact with the copper block cooled with the liquid nitrogen. One of the important parameters to design the cryogenic crystal is a contact thermal conductance at cryogenic.

To know the accurate contact thermal conductance, we made an experimental apparatus and measured the contact thermal conductance at cryogenic when indium sheet was inserted between copper and silicon.