

INDIAN INSTITUTE OF TECHNOLOGY-KANPUR

(DEPARTMENT OF MECHANICAL ENGINEERING)

Subject: Coaxial germanium detector (HPGe)

Enquiry NO: PM/NET-ME/2013-2014-07 closing date: 13th October 2013

Through: Head, Mechanical Engineering

1 Coaxial germanium detector (HPGe) - Technical and Performance Specifications

- 1.1 Energy Resolution: ≤ 2.0 keV @ 1332 keV
- 1.2 Relative efficiency: $\geq 20\%$.
- 1.3 Excellent timing resolution, minimizing dead time concerns
- 1.4 Prefer portable electrically/mechanically cooled such that energy resolution will not exceed 2% of nominal detector performance with the use of an electrically cooled cryostat. Electrically Powered cryostat for cooling of an HPGe detector - Technical and Performance Specifications:
 - i. Compact size, to enhance portability
 - ii. The refrigerant used must be CFC-free and non-flammable.
 - iii. The power controller flexible: operate on 110 V, or 220-240 V, 50 or 60 Hz.
 - iv. Must have low maintenance requirements. Indicate what type of maintenance is required on a monthly or annual basis.
 - v. Fast detector cool down time of four hours or less. Indicate the expected cool down time with the detector that is quoted.
 - vi. Indicate the expected power requirements (watts). Prefer less than 250 watts.

- vii. Indicate the expected power requirements (watts) with the detector that is quoted. Prefer less than 200 watts.
 - viii. Must be able to operate in any orientation.
 - ix. The compressor and cold head are to be packaged together to eliminate the need for flexible metal hoses and their required fittings thus increasing reliability.
 - x. The unit should be able to be electrically powered by an alternate source to maintain the detector in a cooled down state when being transported.
- 3 Vendors must furnish all warranty repair or provide alternate source of local warranty repair at no extra cost to the state.
- 3.1 Contractor will correct or have corrected any substandard work as requested. Such work shall be at no extra cost to IIT-Kanpur.
 - 3.2 An extended warranty of up to 5 years must be included. State what is included in the warranty.
 - 3.3 The vendor must be able to offer an annual hardware agreement that can provide a rapid response, low cost or fixed repair service.

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