

**Bhabha Atomic Research Centre
BARC Training School, Mumbai**

MINI-PROJECT PROPOSAL FORMAT

Name of Trainee:

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Discipline

Physics

Title of Mini-Project:

Prompt in-beam gamma-gamma coincidence and decay spectroscopy using DURGA facility at Dhruva

Guide's Details

Name & Designation:	Dr. Somsundar Mukhopadhyay, SO/E		
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Brief Scope of Work

A novel facility, DURGA (Dhruva Utilization in Research using Gamma Array), has recently been developed at DHRUVA reactor, BARC, to explore low- and medium-spin structures of atomic nuclei employing thermal neutron beam. The facility consists of a hybrid gamma detector array, coupled to a state-of-the-art, in-house developed, digital data acquisition system. In its present configuration, the gamma detector array comprises of six Compton-suppressed clover Germanium detectors and an equal number of LaBr₃(Ce) fast scintillators. Capture Gamma Spectroscopy (CGS) experiments have already been carried out, and interesting results have been obtained. Under the framework of this project, further measurements of prompt γ -rays using thermal neutron beam will be carried out. Decay spectroscopy of radioactive sources and/or irradiated samples can also be explored. Additionally, under this project, all other relevant information including current status in the field, future prospects etc. will be shared, which could eventually be useful to pursue research in experimental nuclear structure physics using γ -ray spectroscopy technique.

Bengt

Signature
02-05-2021

Signature and Seal of Head of Division / Coordinating Official

