

# PLPAC meeting 2024-1

Contribution ID : 26

## Investigation of the Anomaly of Neutron Capture Cross Section for Production of s-process Nuclei $^{64,66}\text{Cu}$

Tuesday 23 Apr 2024 at 12:30 (00h15')

**PI info :**

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**Collaborators Name :**

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**Motivation :**

Neutron capture plays a crucial role in nucleosynthesis in massive stars ( $M/M_{\odot} \gtrsim 8$ ), where most isotopes from Fe to Sr are created through neutron capture reactions. However, significant disparities exist in the literature regarding the neutron capture cross sections of  $^{63}\text{Cu}(n,\gamma)^{64}\text{Cu}$  and  $^{65}\text{Cu}(n,\gamma)^{66}\text{Cu}$ . This proposal aims to investigate these cross-sections using neutron activation and offline gamma-ray spectroscopy techniques at the thermal neutron energy range, conducted at the PLF (Pelletron Linac Facility) at TIFR, Mumbai.

**Beam time requirement in shifts :**

15

**Beam :**

$^1\text{H}$

**Beam Energy :**

1.8 - 2.2

**Beam Current :**

100 - 300

**Beam Port :**

6M

**Buncher Required :**

No

**Target / Sample Details :**

Be/Li, Cu-65, Cu-63, In-115

**Whether the experiment is part of PhD work ? :**

Yes

**Name of the PhD student and year of registration :**

Renu Kumari, May-2022

**Whether the experiment is part of Post-Doc work ? :**

No

**Name of the Post Doc fellow :**

No

**information on the past beamtime at PLF :**

None

**Publication information related to prior work at the PLF :**

Published in DAE symposium on Nuclear Physics 2021 - 2023 by Suresh Kumar et al.

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**Presenter :** Ms. KUMARI, Renu (University of Delhi) ; Prof. MANDAL, Samit Kumar (University of Delhi)

**Session classification :** --not yet classified--

**Track classification :** --not yet classified--

**Type :** --not specified--