

# PLPAC meeting 2024-1

Contribution ID : 24

## Investigation of the E(5) critical point symmetry in $^{74}\text{Se}$

Monday 22 Apr 2024 at 14:15 (00h15')

**PI info :**

Dr. Sajad Ali

**local collaborator info :**

Professor Rudrajyoti Palit

**Collaborators Name :**

1. Dr. Subhendu Rajbanshi, Presidency University, Kolkata
2. Prof. R. Palit, TIFR, Mumbai
3. Dr. Gopal Mukherjee, VECC, Kolkata
4. Dr. Sarmishtha Bhattacharyya, VECC, Kolkata
5. Dr. S. S. Nayak, VECC, Kolkata
6. Dr. Soumik Bhattacharya, VECC, Kolkata
7. Dr. H. Pai, ELI-NP, Romania
8. Dr. S. Nag, IIT-BHU, Varanasi
9. Dr. Saikat Chakrabarty, VECC, Kolkata
10. Dr. Sutanu Bhattacharya, Hebrew University, Israel
11. Mr. Vishal Malik, TIFR, Mumbai
12. Dr. Piku Dey, TIFR, Mumbai
13. Dr. Ananya Kundu, TIFR, Mumbai
14. Mr. A. Sindhu, TIFR, Mumbai
15. Mr. Shouvik Pal, TIFR, Mumbai

**Motivation :**

Present proposal focuses to investigate the E(5) critical point symmetry in  $^{74}\text{Se}$  nucleus [16]. The experimental  $R_{4/2} = 2.15$  for  $^{74}\text{Se}$  which are close to the predicted value of 2.20. The previous measurement on this nucleus extracted the B(E2) transition rates of the ground state band up to the 6+ state and within the error bars transition strength are in well agreement with the E(5) prediction. We will measure the energy and lifetime of the low-lying states and will compare with the IBA calculation to explore the E(5) symmetry in this nucleus.

**Beam time requirement in shifts :**

15

**Beam :**

${}^7\text{Li}$  [Ion = Li and Mass No = 7]

**Beam Energy :**

35MeV

**Beam Current :**

2-3 pA

**Beam Port :**

LINAC HALL-2 15D

**Buncher Required :**

NO

**Target / Sample Details :**

${}^{70}\text{Ge}$

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

Yes

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

Mr. Habibur Rahaman and 2024

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

No

**Name of the Post Doc fellow :**

NA

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

NoT Applicable

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

1. S. Rajbanshi et al., Physical Review C (Letter) 104, L031302 (2021).
2. S. Rajbanshi et al., Physical Review C 104, 064316 (2021).
3. Rajkumar Santra et al., Physical Review C 107, 064611 (2023); DOI: 10.1103/PhysRevC.107.064611

**Primary authors :** Mr. ALI, SAJAD (SENIOR RESEARCH FELLOW) ; Dr. RAJBANSHI, Subhendu  
(Department of Physics, Dum Dum Motijheel College, Dum Dum)

**Co-authors :**

**Presenter :** Mr. ALI, SAJAD (SENIOR RESEARCH FELLOW) ; Dr. RAJBANSHI, Subhendu  
(Department of Physics, Dum Dum Motijheel College, Dum Dum)

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

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

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