BHARAT KHARPUSE

Junior Research fellow
Visva-Bharati, Santiniketan, INDIA
bharatkharpuse@gmail.com (+91) 8989532275
Date of Birth: 05/05/1999

RESEARCH INTEREST

Experimental Nuclear Physics, Gamma Spectroscopy and Nuclear Reactions.

EDUCATION

Master of Science in Physics (Specialization- Nuclear Physics) **CGPA: 7.47/10**
Indian Institute of Engineering Science and Technology, Shibpur *07/2019-07/2021*
West Bengal, India

Bachelor Of Science in Physics **GRADE – 68.02%**
Devi Ahiliya Vishwavidyalaya (DAVV),Indore *06/2016-05/2019*
Madhya pradesh, India

PUBLICATIONS

- **Bharat Kharpuse**, Sramana Biswas, K. Bhandary, S. Barman, A.Biswas, A.Goswami, S. Maiti, A.K.Mondal, U.S.Ghosh, S.Rai, K.Mandal, S. Mondal, Saumyajit Biswas, B.Mukherjee, A.Chakraborty, U.D.Pramanik, S. Chakraborty, Yashraj, I.Bala, K.Katre, A.Sharma, R.P.Singh, S.Muralithar. **"In-beam γ-ray spectroscopy of ^{69}Ge"** *Abstract accepted in DAE-BRNS Conference-2023*

- **B.Kharpuse** , B.Mukherjee, A.Chakraborty, S.Biswas, K.Debnath, A.Bairagya, A.Basak, A.Goswami, S.Barman, A.K.Mondal and U.S.Ghosh **"Shell Model Description of Octupole Correlation in ^{66}Zn & ^{66,68}Ge"** *Abstract accepted in International Conference on Recent Trends in Physics (ICRTP-2023).*

- A. Basak, A.K. Mondal, **B.Kharpuse**, B.Mukherjee, and A.Chakraborty **"Coexisting Features in ^{68}Zn"** *Abstract accepted in DAE-BRNS Conference-2023*

RESEARCH EXPERIENCE

1. Junior Research Fellow **Supervisor- Dr.B.Mukherjee**
Visva-Bharati,Santiniketan. *08/2022-present*

- Working on a project titled "Spectroscopy and Lifetime Measurements of the Excited State in ^{66}Zn & ^{66}Ga".
- Participated in the Indian National Gamma Array (INGA) Campaign-2023, VECC-Kolkata under the guidance of Dr. G. Mukherjee and Dr. S. Bhattacharyya. INGA is a gamma detector array with 12 clover detectors in the upper half sphere.

2. M.Sc Thesis **Supervisor- Prof.S.S.Sarkar**
IIEST-Shibpur. *01/2021-07/2021*

- Investigated "Single Particle Matrix Elements of One-Body Operator for Nuclear Shell Model Calculation" using (one + two) body Hamiltonian in a finite orbital space.

3. M.Sc Term paper **Supervisor- Prof.S.S.Sarkar**
IIEST-Shibpur. *01/2020-12/2020*

- Explored "Empirical Residual Neutron-Proton Interaction in Nuclei". Calculated the interaction energy between valence nucleons using the double difference of binding energy of nuclei. Notably different for N=Z nuclei due to Wigner's SU(4) symmetry.

SKILLS

1. **Instrumentation**
   Gamma spectroscopy: Detector Systems (HPGe), Multichannel Analyzers (MCAs) and Data Acquisition Systems (DAQ).

2. **Computational**
   CERN ROOT, Python, FORTRON, C^{++}, GEANT4, NUSHELLX@MSU, KSHELL, RADWARE, INGASORT, Origin, LaTex.

LANGUAGE PROFICIENCY

Fluent in English and Hindi.

ACHIEVEMENTS

1. GATE-2022 and GATE-2023, Qualified.
2. MH-SET Qualified.
3. JAM-2019, Qualified.
4. State topper in NGPE-2019.

CONFERENCES AND WORKSHOPS

1. **School on Nuclear Models for Structure Studies-2023 (IUAC,Delhi)**
   Here, I gained an understanding of the fundamentals of some well-known nuclear models (Projected Shell Model, Nilson Model, etc.) that are used in nuclear structure studies.
2. **INGA-2023 (VECC, Kolkata)**
   I was actively involved in the INGA setup during July 2023, and have also taken part in several experiments utilizing this detector array.
3. **DAA School-2023 (IUAC,Delhi)**
   School on data Acquisition and analysis. In this school, I learned about the basics of CERN ROOT and Data analysis.
4. **ICRTP-2023 (DAVV, Indore)**
   International conference on recent trends in physics. Here I have presented a poster on my recent work.

REFERENCES

Prof. Sukhendu Sekhar Sarkar
Professor, Department of Physics,
Indian Institute of Engineering Science and Technology-shibpur, India
Mail: sukhendusekhar.sarkar@gmail.com
Cell:(+91)9433006526

Dr. Uday Shankar Ghosh
Research Associate
Inter-University Accelerator Centre-Delhi, India
Mail: usghosh88@gmail.com
Cell:(+91)8159931871