



Name: UTTIYO ARNAB SAHA

Academic Qualifications

Examination	Year of Passing	Board / University	Percentage / Marks obtained
<i>ICSE</i>	<i>2007</i>	<i>CISCE, New Delhi</i>	<i>91.86%</i>
<i>ISC</i>	<i>2009</i>	<i>CISCE, New Delhi</i>	<i>86.29%</i>
<i>B.Sc. Hons. in Physics</i>	<i>2012</i>	<i>University of Calcutta</i>	<i>65.375%</i>
<i>M.Sc. in Physics</i>	<i>2014</i>	<i>Indian Institute of Engineering Science and Technology (IEST), Shibpur (formerly, Bengal Engineering and Science University, Shibpur)</i>	<i>71.8% (1436 out of 2000 in four semesters)</i>
<i>WB SET (Physics), 2013</i>	<i>2014</i>	<i>West Bengal College Service Commission (WBCSC)</i>	<i>60%</i>
<i>Course Work for PhD in Physics</i>	<i>2015</i>	<i>Homi Bhabha National Institute (HBNI)-Indira Gandhi Centre for Atomic Research (IGCAR)</i>	<i>75% 63 credit points</i>
<i>JEST (Physics), 2015</i>	<i>2015</i>	<i>Joint Entrance Screening Test (JEST)</i>	<i>89.33 percentile</i>
<i>NET (Physics), 2015</i>	<i>2016</i>	<i>Council of Scientific & Industrial Research (CSIR)–University Grants Commission (UGC)</i>	<i>107 rank</i>
<i>GATE (Physics), 2017</i>	<i>2017</i>	<i>Graduate Aptitude Test in Engineering (GATE)</i>	<i>1038 rank</i>
<i>Ph.D. in Physics</i>	<i>2019</i>	<i>HBNI-IGCAR</i>	<i>Awarded on 20-12-2019</i>

Experiences

Knowledge of Computer Applications: Microsoft Office, Linux. Interested in Programming and development of code for research applications in FORTRAN, MATLAB, C, C++ and Python languages.

1. At the Saha Institute of Nuclear Physics, I have performed the identification of neutron and gamma radiations using programming logics based on the Pulse Shape Discrimination technique, where a liquid scintillator detector BC501 was used for detection of neutrons and gammas from radioactive ^{252}Cf source.
2. At Indira Gandhi Centre for Atomic Research, I developed a program to unfold the neutron spectrum based on the technique of Genetic Algorithm.
3. At Indira Gandhi Centre for Atomic Research, I have performed the Neutron Activation Analysis and detection of photons by high purity germanium detector to determine the source strength of an Americium-Beryllium thermal neutron source.
4. At Indira Gandhi Centre for Atomic Research, I have developed an indigenous computer code CRaD to compute the primary radiation damage in materials induced by neutrons by using the basic evaluated nuclear data libraries. I have also used the RECONR, BROADR, HEATR, GASPR and GROUPE modules of the international standard NJOY-2016 / NJOY21 code systems.

I was associated with IGCAR for five and half years towards various developmental activities and research works.

Presently, I am working as an Assistant Professor in Physics in Midnapore City College, Paschim Midnapore, West Bengal

Broad Areas of Research and Teaching Interests

- Nuclear physics experiments and theory
- Nuclear reaction data and code development
- Modeling of primary and secondary radiation damage phenomena for nuclear applications
- Effects of evaluated nuclear data on nuclear physics applications and the estimations of radiation damage
- Exploring the inter-disciplinary area of nuclear-materials science through the experiments and development of theory
- Nuclear dosimetry and detectors, Quantum Field theory and Particle physics

Scientific / Technical Notes and Reports

1. **Uttiyoarnab Saha**, K. Devan, “A Brief Report of Development of a Computer Code for Estimating DPA Cross Section of Neutrons from the Evaluated Nuclear Data Libraries”, *Report: IGC-RDG/RND/CPS/172*, IGCAR, 2016.

2. **Uttiyoarnab Saha**, K. Devan “Processing of gas production cross sections of isotopes of Fe from ENDF/B-VIII.0 using CRaD, NJOY-2016.31 and NJOY21 codes”, *Report: IGC-RDG/RND/CPS/192*, IGCAR, 2019.
3. **Uttiyoarnab Saha**, K. Devan, “Gas production in structural materials used in PFBR and their nuclear data uncertainties computed from basic evaluated nuclear data libraries by using the CRaD code”, *Report: IGC-RDG/RND/CPS/194*, IGCAR, 2019.
4. **Uttiyoarnab Saha**, K. Devan, “Validation of Neutron DPA Cross Sections, Heating Cross Sections and PKA Spectra computed using the CRaD code”, *Report: IGC-RDG/RND/CPS/198*, IGCAR, 2019.
5. **Uttiyoarnab Saha**, K. Devan, “CRaD: A Computer Code to Calculate the Metrics of Primary Radiation Damage, User’s Manual to Version 1.0”, Indira Gandhi Centre for Atomic Research, 2019.

Publications in International / National Conferences

1. **Uttiyoarnab Saha**, Krithika Raman, Rutuparna Rath, Tuhin Malik, Abhijit Bisoi, M. Saha Sarkar, “Neutron Pulse-Shape Discrimination and Time-of-Flight Measurements with a Digital Oscilloscope”, *Proceedings: DAE-BRNS Symposium on Nuclear Physics 2014*.
2. **Uttiyoarnab Saha**, K. Devan, “Computation of DPA Cross Sections from Evaluated Nuclear Data Libraries”, *Proceedings: 4th National Conference on Condensed Matter Physics and Applications, CMPA 2016*.
3. **Uttiyoarnab Saha**, K. Devan, “The Effect of Anisotropy of Elastic Scattering of Neutrons in the DPA Cross Sections of Light and Medium Mass Nuclei”, *Proceedings: DAE-BRNS Symposium on Nuclear Physics 2016*.
4. **Uttiyoarnab Saha**, K. Devan, “The Computation of Displacement Damage Cross Sections of Silicon, Carbon and Silicon Carbide for High Energy Applications”, *Proceedings: First International Conference on Advanced Materials, SCICON 2016, ISBN 978-93-86176-47-9*.
5. **Uttiyoarnab Saha**, K. Devan, S. Ganesan, “Covariance Matrices of DPA Cross Sections from TENDL-2015 for Structural Elements with NJOY-2016 and CRaD Codes”, *Proceedings: 4th DAE – BRNS Theme Meeting on Generation and Use of Covariance Matrices in the Applications of Nuclear Data, Manipal University, 2017*.
6. **Uttiyoarnab Saha**, K. Devan, “Quantifying Neutron Radiation Damage in Structural Elements from Evaluated Nuclear Data Using an Indigenous Computer Code – CRaD”, *Proceedings: DAE-BRNS Symposium on Nuclear Physics 2017*.

7. **Uttiyoarnab Saha**, K. Devan, “Neutron heating and gas production rates in structural materials”, *Proceedings: Homi Bhabha National Institute Research Scholars Meet on Materials Science and Engineering of Nuclear Materials, HBNI-RSM-MSENM, 2018*.
8. **Uttiyoarnab Saha**, K. Devan, “The estimation of neutron kerma coefficients from evaluated nuclear data by using the CRaD code”, *Proceedings: DAE-BRNS Symposium on Nuclear Physics 2018*.

Publications in Refereed Journals

1. **Uttiyoarnab Saha**, K. Devan, Abhitab Bachchan, G. Pandikumar, S. Ganesan, “Neutron radiation damage studies in the structural materials of a 500 MWe fast breeder reactor using DPA cross-sections from ENDF/B-VII.1”, *Pramana Journal of Physics (2018) 90:46*.
2. **Uttiyoarnab Saha**, K. Devan, S. Ganesan, “A study to compute integrated dpa for neutron and ion irradiation environments using SRIM-2013”, *Journal of Nuclear Materials 503 (2018) 30 – 41*.
3. **Uttiyoarnab Saha**, K. Devan, S. Ganesan, “Propagation of uncertainties in basic nuclear reaction data to uncertainties in the parameters of primary radiation damage by neutrons”, *Journal of Nuclear Materials 510 (2018) 43 – 60*.
4. **Uttiyoarnab Saha**, K. Devan, “The Computation of Displacement Damage Cross Sections of Silicon, Carbon and Silicon Carbide for High Energy Applications”, *Materials Today: Proceedings 5 (2018) 16501 – 16508*.
5. **Uttiyoarnab Saha**, K. Devan, S. Ganesan, “An estimation of neutron-induced production of gases with propagation of uncertainties in nuclear data for structural materials of fission and fusion reactors”, *Journal of Nuclear Materials 519 (2019) 88 – 103*.
6. **Uttiyoarnab Saha**, K. Devan, S. Ganesan, “Application of arc-dpa model to estimate the primary radiation damage of structural materials by neutrons and the necessity of rescaling dpa versus final experimental damage correlations”, *Journal of Nuclear Materials 522 (2019) 86 – 96*.

Participation in Workshops / Schools

1. National Workshop on Exploring Radiation in Many Splendors (RAD 2013), SINP, West Bengal, (2013).
2. School cum First Collaboration Meeting on Computational Nuclear Structure and Reactions (CMNSR2018), SINP, West Bengal, (2018).

Awards and Honors

- The Suburban Educational Society: Award based on Merit, ICSE 2007.
The Suburban Educational Society: Award based on Merit, ISC 2009.

Department of Atomic Energy: Research Fellowship 2014 - 2019.
Best Oral Presentation Award, CMPA 2016.

Personal Details

Nationality:	Indian
E-Mail Address:	uttiyoarnabsaha@gmail.com
Professional and academic interests:	Teaching and research in Physics, Mathematics and Computer Science. Keenly interested in Nuclear Physics theory and experiments
Languages:	English, Bengali, Hindi
Hobbies/ Extracurricular Interests:	Drawing, music, bicycling, driving and Yoga, Indoor games, Football, Badminton, Cricket

I do hereby declare that the above particulars are correct and true to the best of my knowledge and belief.

Date: 30 January, 2020

Place: Kolkata

UTTIYOARNAB SAHA