



PRETAM KUMAR DAS

Curriculum Vitae

To involve myself in the development and the improvement of the research and education quality of our country by involving myself in the novel profession teaching. My aim is to help the students by enhancing their concept in science and technology. I strongly believe that my first goal as a teacher is to inspire my students for self-study and for research. To involve myself in research for knowing the unknown and finding the mysteries of the universe.

Education

- 2019–2020 **Post Doctoral Collaboration Research**, *Indian Institute of Technology (IIT) Kharagpur*, Kharagpur, West Bengal, India, .
Specialized in Laser Plasma Interaction Using EPOCH code
- 2019–2019 **Reactor Engineering Training Course**, *Bangladesh Atomic Energy Commission*, Dhaka, Bangladesh, .
- 2014–2017 **Doctor of Philosophy**, *Okayama University*, Okayama, Japan, .
Specialized in Experimental Nuclear Physics and Nuclear Astrophysics
- 2009–2010 **Masters of Science**, *University of Rajshahi*, Rajshahi, Bangladesh, *Percentage of Marks – 75.13%, First in merit position.*
Specialized in Theoretical Nuclear Physics and Nuclear Astrophysics
- 2005–2008 **Bachelor of Science**, *University of Rajshahi*, Rajshahi, Bangladesh, *Percentage of Marks -65.3%, 6th in merit position.*

Ph. D. Thesis

- Title *Measurement of Relative Intensity of the Discrete γ Rays from the Thermal Neutron Capture Reaction $^{155,157}\text{Gd}(n, \gamma)$ Using ANNRI Detector (JPARC)*
- Supervisors Professor Makoto Sakuda, Okayama University

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Description The thermal neutron capture reaction on enriched gadolinium targets (^{155}Gd , ^{157}Gd isotopes) has been studied using ANNRI Germanium Spectrometer at MLF, JPARC which provides the most intense pulsed neutron beam for neutron time-of-flight experiments in the world. The purposes of our experiments and analysis are to provide precise γ -ray spectrum of Gd (n, γ) reactions and provide precise Gd decay model to neutrino physics field and other related fields. The γ rays produced from $^{155,157}\text{Gd}$ (n, γ) reactions were measured. The photo-peak efficiencies of the spectrometer have been calibrated from 0.1 to 9 MeV using γ rays from the radioactive sources (^{60}Co , ^{137}Cs , ^{152}Eu) and prompt γ rays from ^{35}Cl (n, γ) reaction. The relative intensities of prominent discrete γ rays produced from ^{155}Gd (n, γ) and ^{157}Gd (n, γ) reactions were measured. Our data of relative intensities from ^{157}Gd (n, γ) were found in fair agreement with the values published by the NNDC (CapGam). The relative intensities of prominent discrete rays from ^{155}Gd (n, γ) reaction were measured for the first time. The properties of Gd nucleus and the previous Gd (n, γ) experiments have been reviewed. The accuracy of the γ -ray spectrum measurement for our thermal neutron capture experiments should be better than others, as we used most intense pulsed neutron beam in the world

Career Experience

Teaching with Research

- 2019–Present **Associate Professor**, DEPARTMENT OF PHYSICS, Pabna University of Science and Technology, Pabna-6600, Pabna, Bangladesh.
- 2013–2019 **Assistant Professor**, DEPARTMENT OF PHYSICS, Pabna University of Science and Technology, Pabna-6600, Pabna, Bangladesh.
- 2014–2017 **Doctoral Researcher**, MEXT SCHOLAR, Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan..
- 2012–2013 **Lecturer**, DEPARTMENT OF PHYSICS, Pabna University of Science and Technology, Pabna-6600, Pabna, Bangladesh.
- 2011–2011 **Lecturer**, DEPARTMENT OF PHYSICS, Chattogram University of Engineering and Technology, Chattogram-4349, Chattogram, Bangladesh.

Administrator

- 2018–Present **Chairman**, DEPARTMENT OF PHYSICS, Pabna University of Science and Technology, Pabna-6600, Pabna, Bangladesh.
- 2018–Present **Proctor**, PROCTOR OFFICE, Pabna University of Science and Technology, Pabna-6600, Pabna, Bangladesh.
- 2018–2018 **Director**, STUDENT ADVISOR OFFICE, Pabna University of Science and Technology, Pabna-6600, Pabna, Bangladesh.

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Research experineece

- 2019–Continue **Theoretical Atomic Astro-physics and nuclear physics** , at *Nuclear Astro-Physics Lab, Pabna University of Science and Technology, Pabna, Bangladesh.*
With Professor M. Alfaz Uddin as a research collaborator. Worked on electron/positron scattering with atom, ions and molecules and which are discussed here in terms of Dirac partial wave analysis using a complex optical potential which comprises static, exchange, polarization and imaginary components at the impact energies using ELSEPA code.
- 2019–2020 **Collaboration Post-Doctoral Research**, *Department of Physics, Indian Institute of Technology (IIT) Kharagpur, Kharagpur, India.*
Spent some time with Dr. Prasanta Kumar Datta, Professor, IIT Kharagpur and worked with him as a research collaborator. Also visited TIFR and SINP for this research project. The research project is to generate the gamma rays from the laser-plasma interaction using EPOCH code.
- 2014–2020 **Collaboration in Experimental Nuclear Physics**, *With Nuclear Astro-Physics Lab, Okayama University, Japan .*
- 2014–2017 **Doctoral Research** , at *Nuclear Astro-Physics Lab, Okayama University, Japan .*
Worked with Professor Sakuda Makoto as a Ph.D. researcher. Worked at MLF, J-PARC, Japan using ANNRI Ge detector. Used CERN ROOT program for analyzing the experimental data and used Geant4 MC code for simulational work.
- 2009–2011 **Theoretical Nuclear Physics and Nuclear Astrophysics** , *Master Thesis Research Workat Nuclear Physics Lab, University of Rajshahi, Rajshahi, Bangladesh .*
Worked with Professor Emeritus Dr. Arun Kumar Basak as M.Sc. a master thesis researcher.

Research as a Thesis and Project Supervisor

- 2020–Present **Theoretical Atomic and Nuclear Physics a**, *Master Thesis Research Work at Nuclear Physics Lab, Pabna University of Science and Technology, Pabna, Bangladesh..*
"Study the elastic and inelastic scattering cross-section of electron and positron with No and NO₂ molecules".
- 2020–Present **Theoretical Atomic and Nuclear Physics a**, *Bachelor Project Research Work at NuclearPhysics Lab, Pabna University of Science and Technology, Pabna, Bangladesh..*
Study the elastic and inelastic scattering cross-section of electron and positron with Alkali Atoms.
- 2018–2020 **Experimental Nuclear and Medical Physics**, *Master Thesis Research Work at Nuclear Physics Lab, Pabna University of Science and Technology, Pabna, Bangladesh and Institute of Nuclear Medicine centre at Bangladesh Atomic Energy Commission, Savar, Dhaka, Bangladesh..*
"Dosimetric characteristics of 6 MV linear accelerator".
- 2017–2020 **Experimental Nuclear and Reactor Physics**, *Bachelor Project Research Work at Nuclear Physics Lab, Pabna University of Science and Technology, Pabna, Bangladesh and at TRIGA reactor centre of Bangladesh Atomic Energy Commission, Savar, Dhaka, Bangladesh..*
"1. Study and check of different systems of BAEC TRIGA research reactor. 2. Application of TRIGLAV Code to the BAEC TRIGA Research Reactor."

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2017–2020 **Medical Physics**, *Bachelor Project Research Work at Nuclear Physics Lab, Pabna University of Science and Technology, Pabna, Bangladesh and at the Institute of Nuclear Medicine and Allied Sciences (INMAS), Rajshahi, Bangladesh..*

"1.Measurement of Dose Rate Resulted From Bone Scintigraphy Patient. 2.Study the Brachytherapy in the treatment procedure of cervical cancer using ^{60}Co source. 3.Calibration of HDR Brachytherapy source ^{60}Co 4.Comprehensive Quality Assurance of ^{60}Co Teletherapy."

Awards

- 2019 Post-Doctoral Research fund by the SGR International Research Scholar Support Program (SGR-RSSP) and Ashoke Deysarkar International Program (ADSIP) for collaborating research with Prof. P. K. Datta, Department of Physics, IIT Kharagpur, India.
- 2014 Doctoral Research fund by Japanese Government Scholarship (MONBUKAGASHO) or MEXT-Scholarship for 2014-2017.
- 2011 National Science and Information and communication Technology (NSICT) Fellowship 2010-11 from the Ministry of Science and Information and communication Technology, Government of the People's Republic of Bangladesh.
- 2010 Gold medal from Ziaur Rahman Hall, Rajshahi University, Bangladesh for good result in B.Sc.(Hons.).
- 2010 Feroza Malik Scholarship of the year 2009-10 for good research work and good result.

Publications List

- 2020 Tomoyuki Tanaka, Kaito Hagiwara, Enrico Gazzola, Ajmi Ali, Iwa Ou, Takashi Sudo, Pretam Kumar Das et.al, "Gamma-ray spectra from thermal neutron capture on gadolinium-155 and natural gadolinium", *Prog. Theor. Exp. Phys.* 2020, 043D02 pp: 1-15 DOI: 10.1093/ptep/ptaa015.
- 2020 Pretam Kumar Das, "Comparative Studies of Photo-peak Efficiencies of Ge detector by Using ^{60}Co radioactive source with Monte Carlo (MC) Simulation Data", *Pabna University of Science and Technology Studies*, ISSN: 2308-6246, Volume 4, Issue 2. 2020, pp:19-23.
- 2020 Tania Afroz, Pretam K Das¹, S. I. Chawdhury² and Shudeb K Roy "Study the Calibration of the High Dose Rate Brachytherapy Radioactive Source ^{60}Co " under review at *Physical Science International Journal*, August, 2020.
- 2020 Md. Ahsan Habib, Pretam Kumar Das, Md. Sohelur Rahman, Shudeb Kumar Roy, "Evaluation of Indoor Radiation Hazard on Worker and Public Health in Mitford Hospital, Dhaka, Bangladesh (EJEPPH-06512-2020)" has been accepted for publication in "European Journal of Environment and Public Health. July, 2020.
- 2020 M. Shorifuddoza A. K. F. Haque, M. A. R. Patoary, Raihan Kabir, Pretam K. Das, M. Alfaz Uddin, "Angular distributions and critical minima in the elastic scattering of electron by atomic Copper", accepted for publication at *International Journal of Quantum Chemistry*, (Accepted). Here is the permanent link to your preprint on Authorea: <https://doi.org/10.22541/au.158921488.81886871>.

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- 2020 Pretam Kumar Das, Ashim Chandra Mondal and Md. Shariful Islam Chowdhury, "Measurement of the Dose Rate Resulted from the Bone Scintigraphy Patient at INMAS", Pabna University of Science and Technology Studies, ISSN: 2308-6246, Volume-4, Issue-1, 2020, pp:7- 11.
- 2019 Kaito Hagiara, Takatomi Yano, Tomoyuki Tanaka, Pretam Kumar Das, Sebastian Lorenz et. al., "Gamma Ray Spectrum from Thermal Neutron Capture on Gadolinium-157", Prog. Theor. Exp. Phys. 2019, 023D01. DOI: 10.1093/ptep/ptz002.
- 2019 Uttam Kumar Chowdhury, Md. Atikur Rahman, Afjalur Rahman, Pretam Kumar Das, M. U. Salma et. al "The Physical Properties of ThCr₂Si₂-type Ru-based Compounds SrRu₂X₂ (X= P, Ge, As): An ab-initio Investigation". Physica C Superconductivity and its applications 562 (2019) 48-55.
- 2018 Pretam Kumar Das "Comparison of the Photo-peak Efficiencies between the Experimental Data of ¹³⁷Cs radioactive source with Monte Carlo (MC) Simulation Data". International Journal of Advanced Research in Physical Science (IJARPS) Volume-5, Issue- 10, PP 24-28, ISSN (online) 2349-7882.
- 2018 Pretam Kumar Das "Measurement of the Photo-peak efficiency of HPGe Semiconductor Detector using ²²Na, ⁶⁰Co & ¹³⁷Cs", Volume 7 Issue 11, pp: 1200-1204, November 2018. ISSN (online): 2319-7064..
- 2018 Pretam Kumar Das "Measurement of the Photo-peak efficiency of HPGe Semiconductor Detector using ²²Na, ⁶⁰Co & ¹³⁷Cs", Volume 7 Issue 11, pp: 1200-1204, November 2018. ISSN (online): 2319-7064..
- 2017 Pretam Kumar Das et. al., "Measurement of the relative intensity of the discrete γ rays from the thermal neutron capture reaction ^{155,157}Gd(n, γ) using ANNRI detector (JPARC)", PoS(KMI2017)045.
- 2017 Hagiara et. al., "Comparison of γ ray's production data from thermal neutron capture on gadolinium with the Monte Carlo simulation", PoS(KMI2017)035.
- 2014 Pretam et. al., "Non-monotonic potential description of ^{6,7}Li elastic scattering by ¹⁶O at low energies", Pabna University of Science and Technology Studies, Volume 1, Number 1, February 2014.
- 2013 Pretam K. Das et. al., "Nucleus-Nucleus (Non- monotonic) Potentials and Vector Analyzing Powers of ⁶Li Scattering by ¹⁶O", International Journal of Scientific Engineering and Technology(IJSET), Volume No.2 Issue No.11 pp: 1098-1102, 1 Nov. 2013.
- 2013 Samiron K. Saha et. al., "Measurement of liquid volume in stomach using 6-elctorde FIM for saline water intake at periodic intervals", Global Journal, Volume 13, Issue 7, Version 1.0, Year 2013.
- 2011 AK Basak, MM Billah, MJ Kobra, MK Sarkar, MM Rahman, PK Das, "Non-monotonic potentials and vector analyzing powers of ^{6,7}Li scattering by ¹²C, ²⁴Mg, ⁵⁸Ni, and ¹²⁰Sn", Euro-physics letters (EPL), 94(2011) 62002.

List of Attended Conferences and Seminars

- 2020 International Conference on Physics - 2020, 05-07 March 2020 organized by Bangladesh Physical Society.

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- 2017 3rd KMI International Symposium on "Quest for the Origin of Particles and the Universe" (KMI2017), Nagoya University, January 5-7, 2017, Nagoya, Japan.
- 2015 International School for Neutrino-Nucleus Scattering Physics by NuSTEC at Okayama University, Japan.
- 2011 Regional Conference on Medical Physics", Dhaka, Bangladesh, 18February, 2011.
- 2011 "Nuclear Physics at the service of Mankind" at Rajshahi, Bangladesh,2011, by Dr. Sayed M. Qaim, scientist at the Research Center Julich and University of Cologne Germany.
- 2011 "Charge transfer in collisions of Si³⁺ with H: A molecular state close coupling treatment" at Rajshahi, Bangladesh, 2011, by Bidhan C. Saha, professor, dept. of Physics, Florida A and M University, Florida, USA.

Membership

- 2009 Member, Nuclear Physics Research Group, Rajshahi University, Bangladesh.
- 2013 Elected Member of Teacher Association in 2013, Pabna University of Science and Technology (PUST), Pabna-6600.
- 2014 Member, Experimental Nuclear Physics & Astro-nuclear Physics group, Okayama University, Japan.
- 2018 Member and convener of the Law and Order Committee of the Admission Central Committee of Pabna University of Science and Technology, Pabna-6600.
- 2019 Member, Theoretical Atomic Astrophysics Group, Rajshahi University & Pabna University of Science and Technology, Pabna.
- 2017 Member, Nuclear and Radiation Lab, Pabna University of Science and Technology, Pabna, Bangladesh.
- 2020 Member, Laser-Plasma Interaction group at Indian Institute of India(IIT) Kharagpur, India.
- 2020 Member, Bangladesh Physical Society (BPS), Dhaka, Bangladesh.

Organized International Webinar by me

- 2020 Have organized series of national and international webinar in Physics in the time of corona pandemic to encourage students and to motivate them in this situation. Still date (August,2020), I've organized more than 25 webinars in physics as a host.

Core Courses

- Ph.D. High Energy Particle Physics, Cosmology, Neutrino Physics.
- M.Sc. Advanced Nuclear Physics (Including Astro-physics), Advanced Medical Physics, Electronic Communication, Particle Physics and Cosmology, Physics of Environment.
- B.Sc. Mechanics, Electromagnetism, Vibration and Waves, Optics, Thermal Physics, Classical Mechanics, Electrodynamics, Atomic and Molecular Physics, Nuclear Physics, Solid State Physics, Electronics, Quantum Mechanics, Statistical Mechanics, Numerical Methods, Pulse and Digital Electronics, Medical and radiation, Physics, Crystallography and Spectroscopy, Reactor Physics, Non- conventional Energy.

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Computer skills

Basic	JAVA, Adobe Illustrator
MS Office	Highly proficient in MS Word (word processing), MS Power Point (presentation preparation), MS Excel (spreadsheet preparation and data analysis) and Sigma Plot
Programming	FORTRAN77, Fortran90, Fortran95, C, C++, MathLab
Intermediate	PYTHON, , L ^A T _E X, OpenOffice, Linux, Microsoft Windows, Macintosh
Software	CERN ROOT, LAHEY, XCODE
ToolKit	

Simulation Work and Code

Simulation	GEANT4, EPOCH, MCNP
Code	SFRESKO, ELSCATA, TRIGLAV

Communication Skills

- 2020 Host at the national and international Webinar on Physics
- 2020 Co-ordinated the olympiad in Mathematics, Chemistry and Physics for talented student collaboration with Energy of the Future, Bangladesh.
- 2020 Organized a seminar on Dengue for making awareness of it
- 2017 Oral Presentation at the national and international Conference
- 2015 Poster at the national and international Conference

Languages

Bengali	Mothertongue	
English	Intermediate	<i>Con conversationally fluent</i>
Japanese	Basic	<i>Basic words and phrases only</i>
Hindi	Basic	<i>Basic words and phrases only</i>

Interests

- Music
- Travelling
- Cricket
- Chess
- Cooking
- Ticket Collecting

Thesis Supervisor

Ph.D.	Dr. MAKOTO SAKUDA, Professor, Department of Physics Okayama University, Japan. Email: sakuda-m@okayama-u.ac.jp
Master	Dr. Arun Kumar Basak, Professor Emeritus, Department of Physics, University of Rajshahi Email: akbasak2001@yahoo.com.

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Personal Information

Father Nimay Chandro Das
Mother Sobi Rani Das
Date of Birth 6th August, 1986
Present Address Dept. of Physics, Pabna University of Science and Technology (PUST), Pabna-6600
Permanent Address Flat no. 6/C, Swapno-Bari, Radhanagar Mojumdar-para, Pabna Sadar, Pabna-6600, Bangladesh.
Sex Male
Marital Status Married
Nationality Bangladeshi
Religion Hindu

Declaration

I, the undersigned, testify that all information contained in this form are true and correct to the best of my knowledge and available to present all proofs and supporting documents upon request by the authority

Pretam Kumar Das
Pabna, Bangladesh

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