

Curriculum Vitae

Dr. Gagan Bihari Pradhan



Personal Details:

Date of Birth- 10th April 1981

Gender- Male, Marital Status- Married

Address: Department of Physics, Govt. College Sundargarh,
Sundargarh-770002

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Professional Degrees:

Ph. D. Physics, 2011, Indian Institute of Technology Madras, India
(Thesis Supervisor- Professor P. C. Deshmukh)

M. Sc. Physics (First Class, 73.6%), 2003, Ravenshaw Autonomous College (Utkal University), Cuttack, Odisha, India

B. Sc. Physics (First Class with Distinction, 66.5%), 2001, A. S. D. College (Utkal University), Odisha, India

Teaching/Research Experiences:

February 2023- Till date: Assistant Professor (OES-I), Govt. Degree College Sundargarh

November 2022- February 2023: Assistant Professor, Department of Physics, Trident Academy of Technology, Bhubaneswar

January 2018 – September 2021: Assistant Professor (Contract), Department of Applied Physics, Jabalpur Engineering College, Jabalpur, Madhya Pradesh, India

August 2014 – August 2017: Assistant Professor (Adhoc), Department of Physics, National Institute of Technology Jamshedpur, India

January 2014 - July 2014: Senior Project officer, Department of Physics, Indian Institute of Technology Madras, India

February 2012 – November 2013: Postdoctoral Fellow, Department of Chemistry, University of Nevada Las Vegas, USA

September 2011- October 2011: Postdoctoral Fellow, School of Basic Sciences, Indian Institute of Technology Mandi, India

Courses offered:

- Engineering Physics (EC 101, MT101,PR201) [4 Semesters] at NIT Jamshedpur
- Mathematical Methods in Physics (PHG5112) [2 Semesters] at NIT Jamshedpur
- Engineering Physics (BT201) [5 semesters] at JEC Jabalpur
- Nuclear Physics (AP3004) [2 semester] at JEC Jabalpur

STTP/FDP/Conference/Seminar organized:

- One week online Short Term Training Program(STTP) on Recent Progress in Material Science and Engineering held at Jabalpur Engineering College during 24-28 August 2020
- One week online STTP on Emerging Tools and Technologies in Material Science and Engineering held at Jabalpur Engineering College during 21-25 September 2020

Research Interest:

- Theoretical/computational atomic and molecular physics
- Quantum dynamics of atom-molecule collisions at low and ultralow energies
- Geometric Phase effects in atom-molecule collisions at ultralow energies

Outreach/Additional Activities:

- Developed the M. Sc Physics Curriculum at the Department of Physics NIT Jamshedpur in the academic session 2015-2016
- Worked as Warden of Hostel D at NIT Jamshedpur from 10-09-2014 to 13-07-2015

Professional Membership:

Life member of Indian Society for Atomic and Molecular Physics (ISAMP)

Fellowship/ Scholarship/Awards:

- Cleared GATE 2006 and awarded JRF and SRF by MHRD
- Received travel support from CECAM, Lyon France to attend theoretical training course “Molecular Simulations” on Dec. 2007
- Received international travel grant (ITS) from Department of Science and Technology (DST) to attend ICPEAC 2009 conference held at Western Michigan University, Kalamazoo USA
- Selected as an Assistant Professor in Technical Education Quality Improvement Programme (TEQIP) project undertaken by MHRD, Govt. of India

Publications:

A. International Journals

1. Ultracold chemistry with alkali-metal-rare-earth molecules
C. Makrides, J. Hazra, **G. B. Pradhan**, A. Petrov, B. K. Kendrick, T. Gonzalez- Lezana, N. Balakrishnan, and S. Kotochigova
Phys. Rev. A **91**, 012708 (2015)
2. Photoionization of Ca 4s in a spherical attractive well potential: Dipole, Quadrupole and relativistic effects
A. Kumar, H. R. Varma, **G. B. Pradhan**, P. C. Deshmukh, and S. T. Manson,
J. Phys. B. **47**, 185003 (2014)
3. Quantum dynamics of O(¹D)+D₂ reaction: Isotope and vibrational excitation effects
G. B. Pradhan, N. Balakrishnan, and B. K. Kendrick,
J. Phys. B. **47**, 135202 (2014)
4. Pronounced effects of interchannel coupling in high-energy photoionization
W. Drube, T. M. Grehk, S. Thies, **G. B. Pradhan**, H. R. Varma, P. C. Deshmukh, and S. T. Manson,
J. Phys. B. **46**, 245006 (2013)
5. Chemical reaction versus vibrational quenching in low energy collisions of vibrationally excited OH with O
G. B. Pradhan, J. C. Juanes-Marcos, N. Balakrishnan, and Brian K. Kendrick,
J. Chem. Phys. **139**, 194305 (2013)

6. Photoionization of the 5s subshell of Ba in the region of the second Cooper minimum: cross sections and angular distributions
A. Ganesan, S. Deshmukh, **G. B. Pradhan**, V. Radojevic, S. T. Manson, and P. C. Deshmukh, *J. Phys. B* **46**, 185002 (2013)
7. Ultracold collisions of O(¹D)+H₂: The effects of H₂ vibrational excitation on the production of vibrationally and rotationally excited OH
G. B. Pradhan, N. Balakrishnan, and Brian K. Kendrick
J. Chem. Phys. **138**, 164310 (2013)
8. Autoionization resonances in the argon isoelectronic sequence
J. George, **G. B. Pradhan**, M. Rundhe, J. Jose, G. Aravind, and P. C. Deshmukh, *Canadian Journal of Physics* **90**, 547 (2012)
9. Cooper Minima: A Window on Nondipole photoionization at Low Energy
G. B. Pradhan, J. Jose, P. C. Deshmukh, L. A. LaJohn, R. H. Pratt, and S. T. Manson, *J. Phys. B (Fast Track)* **44**, 201001 (2011)
10. Valence photodetachment of Li- and Na- using relativistic many-body techniques
J. Jose, **G. B. Pradhan**, V. Radojevic, S. T. Manson, and P. C. Deshmukh, *Physical Review A* **83**, 053419 (2011)
11. Electron correlation effects near photoionization threshold: The Ar isoelectronic sequence
J. Jose, **G. B. Pradhan**, V. Radojevic, S. T. Manson, and P. C. Deshmukh
J. Phys. B **44**, 195008 (2011)
12. Variation of photoelectron angular distributions along the Ar and Ca isonuclear sequences
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic, and S. T. Manson
Physical Review A **81**, 063401 (2010)
13. Photoionization of Mg and Ar isonuclear sequence
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic, and S. T. Manson
Physical Review A **80**, 053416 (2009)
14. Nondipole and interchannel coupling effects in the photodetachment of Cl⁻
J. Jose, **G. B. Pradhan**, P. C. Deshmukh, V. Radojevic, and S. T. Manson
Physical Review A **80**, 023405 (2009)
15. Relaxation effects in the photodetachment of intermediate p shells of chlorine and bromine negative ions
V. Radojevic, J. Jose, **G. B. Pradhan**, P. C. Deshmukh, and S. T. Manson
Canadian Journal of Physics **87**, 49 (2009)

B. International conference proceedings

1. Photoionization of the 2p subshell in the Ar isonuclear sequence
Aarthi Ganesan, S. Deshmukh, J. Jose, **G. B. Pradhan**, V. Radojevic, P. C. Deshmukh, and S. T. Manson
Journal of Physics: Conference Series **635**, 092054 (2015)
2. Dipole and quadrupole photodetachment/photoionization studies of the Ar isoelectronic sequence
J. Jose, **G. B. Pradhan**, V. Radojevic, S. T. Manson, and P. C. Deshmukh
Journal of Physics: Conference Series **388**, 022098 (2012)
3. Photoionization of atomic cadmium using Multi-Configuration Tamm-Dancoff approximation
G. B. Pradhan, J. Jose, V. Radojevic, S. T. Manson, and P. C. Deshmukh
Journal of Physics: Conference Series **194**, 022042 (2009)
4. Photodetachment cross section of lithium negative ion
J. Jose, **G. B. Pradhan**, V. Radojevic, S. T. Manson, and P. C. Deshmukh
Journal of Physics: Conference Series **194**, 022096 (2009)
5. Ab initio calculations of Stark-induced electric dipole transition amplitudes of singly ionized calcium
G. B. Pradhan, G. Dixit, P. C. Deshmukh, and S. Majumder
Journal of Physics: Conference Series **80**, 012052 (2007)

Presentations at national and International conferences:

1. Relaxation effects in photodetachment of intermediate p shells of the chlorine and bromine negative ions
V. Radojevic, J. Jose, **G. B. Pradhan**, P. C. Deshmukh, and S. T. Manson;
Symposium on Atomic Physics: A Tribute to Walter Johnson Notre Dame, 4-5 April 2008
2. Effects of interchannel coupling on shape resonance in quadrupole photodetachment of Cl⁻
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic and S. T. Manson; DAE- BRNS symposium on Atomic, Molecular and Optical Physics, IUAC New Delhi, 10-13 February 2009
3. Relaxation effects on the photoionization of inner shells of atoms and ions of Mg and Ar isonuclear sequence
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic, and S. T. Manson; DAE- BRNS symposium on Atomic, Molecular and Optical Physics, IUAC New Delhi, 10-13 February 2009
4. Photoionization of isonuclear sequences
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic, and S. T. Manson;
DAMOP 2009, University of Virginia, Charlottesville, Virginia, 19-23 May 2009.
5. Photoionization cross section of atomic cadmium using Multi-Configuration Tamm-Dancoff approximation
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic, and S. T. Manson; XXVI ICPEAC, Western Michigan University, Kalamazoo, USA, 22-28 July 2009
6. Variation of photoelectron angular distributions along Ar and Ca isonuclear sequences
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic, and S. T. Manson;
DAMOP 2010, Huston, Texas, 25-29 May 2010
7. Dramatic quadrupole effects in the low-energy photoionization of the 3s subshell of atomic Mg
G. B. Pradhan, J. Jose, P. C. Deshmukh, V. Radojevic, and S. T. Manson;
DAMOP 2011, Atlanta, Georgia, 13-17 June 2011
8. Quantum mechanical investigations of O(¹D)+H₂(v) and OH(v)+O reactions
N. Balakrishnan, **G. B. Pradhan**, and B. K. Kendrick, American Geophysical Union fall meeting, Moscone Convention Center, San Francisco, California, 3-7 December 2012
9. The effect of vibrational excitation of molecular hydrogen on the dynamics of reaction between O(¹D)+H₂ at ultracold temperatures
G. B. Pradhan, N. Balakrishnan, and B. K. Kendrick; DAMOP 2013, Quebec City, Canada, 3-7 June 2013
10. Photoionization study of the 2p subshell in the Ar isonuclear sequence
A. Ganesan, **G. B. Pradhan**, B. Jones, J. Nicholson, A. Banik, and P. C. Deshmukh; AISAMP 2014, Sendai, Japan, 6-10 October 2014
11. Xe 5s Photoionization near the Second Cooper Minimum using RMCTD
A. Ganesan, **G. B. Pradhan**, and P. C. Deshmukh, 7th Topical Conference of the Indian Society for Atomic and Molecular Physics, IIT Tirupati, 6-8 January 2018