



## DR. TAPAS KUMAR GHOSH

**Present position:** Associate Professor  
Department of Physics, DHWU

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**Academic qualifications:**

- B.Sc. - University of Calcutta, India
- M.Sc. - Visva Bharati, India
- Ph.D. - Jadavpur University, India  
(Res. Inst.- Indian Association for the Cultivation of Science, India)

**Post-doctoral experience:**

- 1996-1997 Indian Association for the Cultivation of Science, Jadavpur, India
- 1997-1998 University of Electro-Communications, Tokyo, Japan
- 1998-2000 Institute for Molecular Sciences, Okazaki, Japan
- 2000-2001 Keio University, Yokohama, Japan
- 2002-2002 University of Calcutta, Kolkata, India

**Positions held:**

<u>University/Institution</u>	<u>Period</u>	<u>Position</u>
University of Electro-Communications Dept. of Natural Sciences, Tokyo, Japan	1997-1998	Lecturer
Institute for Molecular Sciences Molecular Cluster Division, Okazaki, Japan	1998-2000	Lecturer (IMS Fellow)
Keio University Dept. of Chemistry, Yokohama, Japan	2000-2001	Instructor/Lecturer (JST Fellow)
Dr. B. C. Roy Engineering College, Dept. of Physics, Durgapur, India	2002-2007	Lecturer & HOD
Ramakrishna Mission Residential College Narendrapur, Kolkata, India	2007-2016	Assistant Professor
Diamond Harbour Women's University, Sarisha, Diamond Harbour, India	2016-To date	Associate Professor

## Area of research interests: **Theoretical Study of Atoms, Molecules & Clusters**

Present research interest includes the investigation of molecules containing halogens, carbon-dioxide etc. which are potentially important in atmospheric ozone depletion, particularly in the lower stratosphere. Ab initio methods are used to study their spectroscopic properties, thermo-chemistry, reaction kinetics and their effectiveness in atmospheric ozone depletion.

Quantum chemical calculations of the response properties of atoms and molecules of astrophysical interests also share a part of my research work.

### Research project completed/ongoing:

Minor Research Project funded by UGC: 2008-2010

Participation in: National Conferences, Seminars, Workshops, Teacher's enrichment program etc.- 38, International conferences- 09

### Publications :

#### (A) Atomic Calculations:

1. Dynamic polarizabilities & Rydberg states of argon isoelectronic sequence  
- **T.K. Ghosh**, A.K. Das, Marcos Castro, S. Canuto and P.K. Mukherjee  
Physical Review **A48**, 2686 (1993).
2. Quadrupolar transition probabilities for open shell atomic systems  
- **T.K. Ghosh**, A.K. Das and P.K. Mukherjee  
The Astrophysical Journal **419**, 855 (1993).
3. New resonances in a dynamic polarizability calculation  
- **T.K. Ghosh**, A.K. Das and P.K. Mukherjee  
Chemical Physics Letters **218**, 433 (1994).
4. Static quadrupole polarizabilities of negative ions  
- A.K. Das, **T.K. Ghosh** and P.K. Mukherjee  
Physica Scripta **50**, 354 (1994).
5. Doubly excited  $^3S_e$ ,  $^3D_e$  and  $^3G_e$  states of two-electron atomic systems  
- A.K. Das, **T.K. Ghosh** and P.K. Mukherjee  
Theoretica Chimica Acta **89**, 147 (1994).
6. On the interpretation of two electron-one photon transitions in slow collisions between fully stripped ions and solid targets  
- T.K. Mukherjee, **T.K. Ghosh** and P.K. Mukherjee  
Zeitschrift fur Physik D **33**, 7 (1995).
7. Oscillator strengths for highly stripped ions of C- isoelectronic sequence  
- **T.K. Ghosh**, D. Ray and P.K. Mukherjee  
Canadian Journal of Physics **73**, 554 (1995).

8. The  $2p^5 3l$  configurations of highly stripped Ne-like ions: Possibility of X-ray laser emission  
- **T.K. Ghosh**, A.K. Das, T.K. Mukherjee and P.K. Mukherjee  
The Astrophysical Journal **452**, 949 (1995).
9. Atomic data of medium Z ions  
- **T.K. Ghosh** and P.K. Mukherjee  
Physica Scripta **55**, 273 (1997).
10. Quadrupolar transitions in chlorine isoelectronic ions  
- A.K. Das, **T.K. Ghosh**, D. Ray, T.K. Mukherjee and P.K. Mukherjee  
Physica Scripta **58**, 315 (1998).
11. Inter-configuration forbidden transitions in argon isoelectronic ions  
- A.K. Das, **T.K. Ghosh**, D. Ray, T.K. Mukherjee and P.K. Mukherjee  
The Astrophysical Journal **508**, 959(1998).
12. Radial and angular correlations in doubly excited states: a time-dependent perturb. approach  
- A.K. Das, **T.K. Ghosh**, D. Ray, T.K. Mukherjee and P.K. Mukherjee  
Int. J. Quantum Chem. **76**, 99 (1999).

### **(B) Molecular Calculations:**

13. Theoretical study of the spectroscopic constants of low lying states of  $\text{Ga}_2$   
- **T.K. Ghosh**, K. Tanaka and Y. Mochizuki  
J. Mol. Struct. (Theochem) **451**, 61 (1998).
14. The CSF based multi-referenced coupled pair approximation IV- Revision of coupling term and application to Rydberg-valence avoided crossing in the lowest two  $^1\Sigma^+$  excited states of the FH molecule and lowest two  $^3\Sigma_g^-$  states of  $\text{F}_2$  molecule.  
- K. Tanaka, **T. K. Ghosh** and T. Sakai  
Int. J. Quan Chem. **74**, 661 (1999).
15. Ab initio CASSCF and MRSDCI calculations of the  $(\text{C}_6\text{H}_6)_3^+$  radical.  
- E. Miyoshi and **T. K. Ghosh**  
Chem. Phys. Lett, 323, **434** (2000).
16. Molecular Orbital study on the OH stretching freq. of the phenol dimer and its cation.  
- **T.K. Ghosh** and E. Miyoshi  
Theo. Chem. Acc, **105**, 31 (2000).
17. Electron emission in collisions between atoms and dressed projectiles.  
-A. Mondal, **T.K. Ghosh**, C.R. Mandal, and M. Purkait  
J. Phys. B: At & Mol Phys. **49**, 245203 (2016).
18. Ab initio study of the reaction kinetics of  $\text{IO}+\text{ClO}$  and  $\text{IO} + \text{BrO}$ .  
-**T.K. Ghosh** and S. Yabushita  
Int. J. of Res. in Chem. and Envir. **7**, 7 (2017).

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\*\*\*\*\* **Thank you.** \*\*\*\*\*