Curriculum Vitae

Dr. Subhasree Ghosh
Assistant Professor (Coordinator)
Department Of Chemistry
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Academic Appointments:

2019 March-till date: Assistant professor in Department of Chemistry, DHWU, West Bengal, India
2009 Sept. - 2019 Feb.: Dept. Of Chemistry, Serampore College, Serampore, Hooghly

Education:

- **Ph.D. 2011,** Indian Association for the Cultivation of Science (IACS-Jadavpur University), India (***With Prof. S. P. Bhattacharyya)***
  Title: Some Aspects of Quantum Dynamics of model atoms, molecules and clusters)
- **Master of Science (Physical Chemistry Special), 2004,** University of Calcutta, West Bengal, India.
- **Bachelors of Science, 2002,** University of Calcutta, West Bengal, India.

Award

- **2005**: Graduate Aptitude Test in Engineering (GATE), AIR 75,
- **2004:** SLET Qualified (Organised by CSC, West Bengal)
- **2004**: CSIR-National Eligibility Test Awarded JRF(CSIR) (CSIR-UGC-New Delhi)

Research Interest:

The gross area of interest is the study of several aspects of quantum dynamics which includes tunnelling in model and real chemical systems, dynamics of bond dissociation, photoionisation,
Phododetachment and dynamics of energy transfer between the coupled modes of motion in a chemical system. One of the objective of the research is to have control over the above chemical processes by applying an electromagnetic pulse or by proper thermal excitation and sometimes allowing the system to interact with its surroundings.
In our recent works, this dynamic control over chemical processes has been achieved by using stochastic optimisation algorithms. These techniques include **Simulated annealing** (SA), **Genetic Algorithm** (GA) etc. By using those stochastic algorithms, we have got **coherent destruction of tunnelling** (CDT) in one dimensional and two dimensional systems. We have also employed **Floquet Theory** to control the tunnelling splitting of the system. Suppression and enhancement of tunnelling rate by applying an optimally designed polychromatic field is one of the area of our recent research.
The **momentum basis representation** has been also used wherever it seems to be useful from the chemical consideration. The rotational of acetonitrile, isomerisation dynamics of malonaldehyde, etc. are the real chemical systems we are working with presently. We also perform our study in model systems like Eckart barrier or symmetrical double well potential to study **Chaos assisted tunnelling**, or other chemically interesting processes.

Future plan of research:

In future I want to extent my research to chemically challenging systems like, photo detachment and photodissociation of F_2^- , HF_2^-, $HFCl^-$, etc.by exploiting the evolutionary algorithm techniques. For further extension, I wish to do some ab initio calculations to get the proper potential energy surface by employing suitable softwires like Molpro, and then perform the quantum dynamical study of the chemical processes.

Teaching Interest:

- Quantum Mechanics
- Thermodynamics
- Chemical Kinetics

- Group Theory
- Spectroscopy

Publications List (published in SCI Journals, in year wise descending order)

Sl. No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1.	Pulak Naskar,Srijeeta Talukder, Subhasree Ghosh and Pinaki Chowdhury	Controlling the isomerisation dynamics of iodide acetonitrile dimer complex by optimally designed polychromatic field	International Journal of Quantum Chemistry Impact factor =2.92 ISSN: 0020-7608	Accepted on 20.2.19		2019
1.	Pulak Naskar,Srijeeta Talukder, Pinaki Chowdhury and Subhasree Ghosh	The effect of stochastic barrier fluctuation on semi-classicaltransmission probabilityand Shannon entropy ofa symmetric double wellpotential	International Journal of Quantum Chemistry Impact factor =2.92 ISSN: 0020-7608	118	25667.	2018
2	Srijeeta Talukder, Pinaki Chowdhury and Subhasree Ghosh	Simulated annealing based optimal control over tunneling process through SDWP and Eckart barrier: A momentum basis representation	International Journal of Quantum Chemistry Impact factor =2.92 ISSN :0020-7608	117	25388	2017
3	Subhasree Ghosh, S. Talukder and P. Chowdhury	Optimised Polychromatic Field mediated supprression of H-atom tunnelling in coupleddouble well: two dimensional malonaldehyde system	Molecular Physics Impact factor =1.704 ISSN: 0026-8976	113	3826	2015
4	PaulamiGhosh,Subhasree Ghosh,J.Mitra andN.K. Bera	Finite size effect on classical ideal gas revisited	European Journal of Physics Impact factor =0.614 ISSN: 1361-6404	36	055046	2015
5	Paulami Ghosh, Subhasree Ghosh, N.K.Bera,	Classical and revival time periods of confined harmonic oscillator	Indian J. Phys Impact factor =0.988 ISSN: 0973-1458	89	157-166	2015
6	Subhasree Ghosh, Srijeeta Talukder, Shrabani Sen, Pinaki Chaudhury	Coherent destruction of tunneling with optimally designed polychromatic externalfield	Chem. Phys. Impact factor =1.707 ISSN: 0301-0104	425	73-79	2013
7	S.Kar, Subhasree Ghosh, S. P.Bhattacharyya,	Bichromatic fluctuations in symmetric double well potentials: localization and control of tunneling	Chemical Physics Impact factor =1.707 ISSN: 0301-0104	403	12-24	2012
8	Nirmal Kumar Datta ,Subhasree Ghosh and Manas Ghosh,	Excitations in doped quantum dot insisted by discontinuous reversals of static electric field: Interplay between pulse and dopant site	Superlattices and Microstructures Impact factor =2.099 ISSN: 0749-6036	51	163-176	2012
9	Subhasree Ghosh, S. P. Bhattacharyya	Dynamics of atom tunneling in a symmetric double well coupled to an asymmetric double well: The case of Malonaldehyde	Journal of. Chemical Science Impact factor =1.254 ISSN: 0974:3626	124	13-19	2012
10	Subhasree Ghosh, S P Bhattacharyya	Localisation in some discontinuously and randomly driven quantum systems	International Journal of Quantum Chemistry Impact factor =2.92	110	2637	2010

			ISSN :0020-7608			
11	Manas Ghosh , Subhasree Ghosh, S.P. Bhattacharyya	Tunneling in 2-D quantum dots via quantum adiabatic switching route	Journal of Physics and Chemistry of Solids Impact factor =2.207 ISSN : 0022-3697	71	745	2010
12	Subhasree Ghosh , Parikshit Mandal and Manas Ghosh	2d Quatum Dots in polychromatic radiation fields:Effects of frequency mixing phase and anharmonicity on the freezing of dynamics	Journal of Theoretical and Computational Chemistry Impact factor =0.638 ISSN : 0219-6336	9	293	2010
13	Nirmal Kumar Datta , Subhasree Ghosh , Manas Ghosh	Excitations in doped quantum dot driven by discontinuously and randomly reversing electric field: Influence of impurity	Chemical Physics Impact factor =1.707 ISSN: 0301-0104	378	6	2010
14	Nirmal Kumar Datta, Subhasree Ghosh, and Manas Ghosh,	Effect of impurity strength and impurity domain on excitation of doped quantum dot induced by discontinuously reversing pulsed	Journal of Applied Physics Impact factor =2.176 ISSN: 0021-8979	108		2010
15	Subhasree Ghosh and S.P. Bhattacharyya	Quantum dynamics of a discontinuously kicked charged particle in harmonic, symmetric double, or triple wells	Int. J. Quant. Chem. Impact factor =2.92 ISSN :0020-7608	109	1177	2009
16	Subhasree Ghosh, K. Maji, R. Sharma and S.P. Bhattacharyya	An optimal design of low frequency polychromatic fields for facile photo-dissociation of model diatomic molecules	Journal of Chemical Science Impact factor =1.254 ISSN: 0974:3626	121	757	2009
17	Subhasree Ghosh and S.P. Bhattacharyya	Dissociation of a diatomic molecule induced by discontinuous reversals of a static electric field	Int. J. Quant. Chem. Impact factor =2.92 ISSN :0020-7608	108	1209	2008
18	S. Das, N. Bera, Subhasree Ghosh and D. Mukherjee	An Externally-corrected size-extensive single-root MRCC formalism: Its kinship with the rigorously size-extensive state-specific MRCC theory	Theor. Chim. Acta. Impact factor =2.264 ISSN : 0020-1693	771	79	2006
19	N. Bera, Subhasree Ghosh, D. Mukherjee and S. Chattopadhyay	Reappraisal of the Role of Size-extensive Normalization for Multi-reference Coupled-Cluster (MRCC) Theory using General Model Space: A Valence Universal MRCC Approach	J. Phys. Chem. A Impact factor =4.484 ISSN : 1932-7447	109	11462	2005

Books/Reports/Chapters/General articles etc:

S. No.	Title	Author's Name	Publisher	Year of Publication
1.	Chapter 5 : Quantum Frontiers of Atoms and Molecules: Tunneling Dynamics and Its Signatures in Coupled Systems	S. Ghosh and S.P. Bhattacharyya	Nova Science Publishers	2010
2.	Book : Physical Chemistry Concepts & Models	NabakumarBera, Subhasree Ghosh and Paulami Ghosh	Techno World ISBN : 978-81-926952-6-6	2018