

CURRICULUM VITAE

Name: Tapati Dutta

Sex: Female

Date of Birth: 25Th April, 1964

Citizenship: Indian

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Date of superannuation: 25.4.2029

Designation: Associate Professor; Convener of Research; Member of Learning Management System

Official Address: Physics Department, St. Xavier's College, 30. Mother Teresa Sarani,; Kolkata 700016, India.

Residential Address: Flat:1904, Tower6, Urbana, 783 Anandapur, Kolkata 700107, India.

Membership in scientific bodies:

1. Condensed Matter Physics Research Centre, Jadavpur University, India
2. Indian Society of Non-linear Analysis, Registration Number : S/98686 of 2000-2001.

Academic Record:

Class	Year	Institution	Subject
UG	1985	Bethune College, Calcutta University	Physics (Major)
PG	1988	Calcutta University	Physics
Ph.D	1995	Jadavpur University	Physics

- Have been doing research since 1990

Field of Specialization: Condensed Matter Physics

Publications:

Refereed Journals:114

Books:1

Book chapter : 4

(see annexure for list)

Ph.D Guidance of students:

Completed:11

Current Areas of Interest:

1. Physics and application of Drying droplet
2. Desiccation Crack
3. Self organisation in disordered systems
4. Fractals and multifractals
5. Porous media; sedimentary rocks and their transport properties
6. Hydrodynamics

7. Modelling non-linear and disordered systems

Significant Research accomplishments:

1. Study of porous media e.g. sedimentary rocks- developed a simulated model (Relaxed Bidisperse Ballistic Deposition Model) for sedimentary rocks; studied microstructure quantization and its link with transport property – namely, electrical conductivity, permeability.
2. Developed a model for reactive flow through sedimentary rocks and its effect on dynamic evolution of the pore and transport properties of rocks.
3. Studied pattern formation in the desiccation of colloidal solution, namely aqueous solution of Laponite, through experiments and modelling.
4. Studied effect of composites, namely polymer-clay, in the development of desiccation cracks with a view on crack prevention, effect on manner of crack development in the form of a complete peel-off from the substrate or crack through body of material. The study was done through experiments and modelling.
5. Controlling desiccation crack pattern in colloidal solutions by the application of electric field-both direct current (DC) and alternating current (AC) fields. Both experimental and simulation studies using spring network models have been done.
6. Studying evaporating droplets of complex fluids in salt admixtures on different horizontal surfaces through experiments and modelling. The focus is to understand the underlying mass transfer processes that result in interesting patterns on desiccation. Depending on the complex liquid-substrate combination, the droplets may develop crack patterns too.
7. Using fractals and multifractal tools to study mass distribution of particles in a complex system in any dimension.
8. Mapping dynamical systems using concepts of Topology.

Projects: (As PI or co-PI)

National: 1 (1 UGC)

International: 2 (1 CEFIPRA, 1 INDO-JAPAN)

ONGOING / COMPLETED PROJECTS WITH THE INDIAN PRINCIPAL INVESTIGATOR

National

Sl. No.	Project Title	Sponsoring Agency	Budget (Approx.)	Status
1	Wetting, spreading and adhesion of complex fluids(34-I, (WR)(SR) 2009-2012	UGC	11 lakh	Completed

International

Sl. No.	Project Title	Sponsoring Agency	Name of collaborating scientist and institute	Budget (Approx.)	Status
1	MINERAL-FLUID INTERACTION MODEL FOR CO ₂ SEQUESTRATION	IFCPAR (Project 4409-1)	Prof. Phillipe Gouze, University of Montpellier II	10 lakh + visits	Completed
2	Effect of competing mechanical and	DST (No.DST/INT/JSPS/P-128/11)	Dr. Akio Nakahara, Nihon University,	4 lakh	Completed

	electromagnetic perturbation on formation of surface cracks		Japan.		
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Others:

- Invited as speaker at various National and International conferences
- Acts as Reviewer in International journals of repute in Physics
- Organized National and International Seminars and Workshops