



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO
CODE _____ 5954

ID

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di**
_____ **Physics** _____

Scientist- _____ in _____ - charge: _____ **Prof. Roberto**
Guerra _____

[Name and surname]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	ROY
Name	SUTAPA

PRESENT OCCUPATION

Appointment	Structure
Visiting Scientist, International Centre for Theoretical Physics	

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree			
Specialization			
PhD, course work CGPA 7 (out of 8)	PhD in Physics (Computational work, Statistical Mechanics)	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India	2014
Master , CGPA 8.38 (out of 10)	Physics	Indian Institute of Technology Madras, India	2008
Bachelor of Science, 64% marks	Physics honours, Chemistry, Mathematics	University of Calcutta, St. Xavier's College	2006



		Kolkata	
Degree of medical specialization			
Degree of European specialization			
Other			

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City
January 2014	Max-Planck Institute for Intelligent Systems	Stuttgart, Germany
01/12/2020	Indian Institute of Technology Gandhinagar	Gandhinagar, India

FOREIGN LANGUAGES

Languages	level of knowledge
English	Proficient in Writing, speaking

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2001	National Scholarship for securing 18th rank in the State Board in Secondary School Final (Madhyamik) Examination (among approx. 6×10^5 candidates), from West Bengal Board of Secondary Education, India, 2001.
2001	Governor's Proficiency Certificate for ranking 1st among the girls in the District in Secondary School Final (Madhyamik) Examination, from the Governor of West Bengal, India, 2001.
2003	Recognition for securing 1st position in the District among the girls in the Higher Secondary Examination (class 12), from West Bengal Council of Higher Secondary Education, India, 2003.
2003	Shivaji Dutta Gupta Silver Medal for securing highest marks in English in the State Board in Higher Secondary Examination (class 12) (among approx. 4×10^5 candidates), from the State Board 'West Bengal Council of Higher Secondary Education', India, 2003.
2006	IIT-Madras Merit Scholarship throughout M.Sc given to the toppers, IIT-Madras, India (2006-2008).
2012	Obtained financial support from SERB, India, for attending conference in Italy, 2012.



1995	Certificate of merit from National Science Society, India, 1994 and 1995.
2019	Best Poster prize at the conference “Wetting in Complex Systems”, Germany (2019).
2020	Excellence Research Scholarship from Indian Institute of Technology Gandhinagar, India (Dec 2020 – November 2021).

TRAINING OR RESEARCH ACTIVITY

My research encompasses the field of “Statistical Physics” and “Computational Physics”.

2008-2013: Phase separation dynamics: I worked on the phase separation dynamics in single-component liquids near a vapor-liquid transition via computer simulations using molecular dynamics simulations. The goal of this project was to study nucleation and growth of droplets upon a temperature quench. Also, the investigate the dependence of domain growth dynamics on the density of the fluid, temperature, etc.

2008-2013: Critical Phenomena: Using Monte Carlo and molecular dynamics simulations, I studied static and dynamic critical phenomena in binary liquid mixtures close to liquid-liquid transitions. Particular focus was on quantifying the critical singular behavior of various transport quantities, e.g., shear and bulk viscosity, interdiffusivity.

2014-2015: Collective dynamics in fluids: Close to a second order phase transition, when the correlation length is very large, fluids often exhibit collective behavior. Using molecular dynamics simulations we studied collective dynamics in fluids.

2015-2020: Confined fluids: Fluids under confinement exhibit various interesting properties which are not observed in bulk fluids. This arises due to the breaking of translational symmetry. Using molecular dynamics simulations we investigate the non-equilibrium dynamics in a fluids confined in a slit pore upon a sudden temperature quench. We also study the scaling properties of the order parameter.

2015-2020: Hot Janus colloids and active motion: When a Janus particle which is suspended in a near-critical binary solvent is illuminated with laser it undergoes active motion. Using mesoscopic theory and numerical calculations, we study the dynamics behind the motion of such colloids. Particular focus is on the dependence of this mechanism of the laser intensity, solvent concentration, particle surface properties, confinement effects, etc.

2020-2023: Coalescence preference of droplets: When two droplets touch each other and coalesce, the final product droplets usually forms closer to the larger parent, known as coalescence preference. Using molecular dynamics simulations we study this mechanism for droplet coagulation process. Our findings are compared with existing reports from experiments.

PROJECT ACTIVITY

Year	Project
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2016	Co-investigator, German-Polish collaboration Harmonia grant “Active Brownian motion of microparticles in complex fluids”, Germany (2016-2019).
2020	Principal Investigator, DAAD Bilateral grant on “Multiscale approximation for the collective dynamics of light-activated colloids”, Germany.

PATENTS

Patent

CONGRESSES AND SEMINARS

The listed presentations are contributed talks. Invited seminars are mentioned at the end of this form.

Date	Title	Place
2020	Dynamics of solvent around colloidal particle	Soft Matter at Interfaces', Germany
2018	Non-equilibrium surface critical dynamics in a confined binary liquid mixture	DPG Spring Meeting, Berlin, Germany
2016	Statics and Dynamics of the Critical Casimir Effects in a Binary Fluid	Conference on Complex Fluids-COMPFLU-2016, Pune, India
2015	Statics and Dynamics of the Critical Casimir Effects in Binary Fluids	Conference on Growing Length Scale Phenomena, Bangalore, India
2015	Dynamics of a near-critical Binary Fluid in Bulk and Confinement	Deutsche Physikalische Gesellschaft Meeting DPG, Berlin, Germany
2013	Effects of Domain Morphology on Kinetics of Fluid Phase Separation	TSU Inhouse Symposium, JNCASR, Bangalore, India
2012	Nucleation and Growth in Vapor-Liquid Transition	TSU Inhouse Symposium, JNCASR Bangalore, India
2011	Thermodynamics vs Dynamics: Critical Phenomena in Small Systems	TSU Inhouse Symposium JNCASR Bangalore, India
2011	Bulk Viscosity at Fluid-Fluid Criticality	JNCASR- UCL Workshop on Multi-scale Modeling and Simulations of Materials, Bangalore, India
2010	Dynamics at Fluid-Fluid Criticality	JNCASR Inhouse Symposium, Bangalore,



		India

PUBLICATIONS

Books
[title, place, publishing house, year ...]
[title, place, publishing house, year ...]
[title, place, publishing house, year ...]

Articles in reviews
[title of the article, review, place, publishing house, year ...]
[title of the article, review, place, publishing house, year ...]
16. Juhi Singh and Sutapa Roy , ‘Coalescence preference dynamics for droplet growth during single-component fluid phase separation’, Frontiers in Physics , 10 (2022).
15. Juan Ruben Gomez-Solano, Sutapa Roy , Takeaki Araki, S. Dietrich, and Ania Maciolek, ‘Motility of optically heated Janus colloids in a binary solvent’, Soft Matter (2020), DOI: 10.1039/d0sm00964d. On Cover .
14. Sutapa Roy , Arabinda Bera, Suman Majumder and Subir K. Das, ‘Aging phenomena during phase separation in fluids: decay of autocorrelation’, Soft Matter 15, 4743 - 4750, (2019).
13. Sutapa Roy and Ania Maciolek, ‘Non-equilibrium dynamics of a binary solvent around heated colloids in bulk and under confinement’, Soft Matter , 14, 9326 (2018). Featured as Cover Image .
12. Sutapa Roy , ‘Coalescence preference and droplet size inequality during fluid phase segregation’, Europhysics Letters , 121, 34001 (2018).
11. Sutapa Roy , S. Dietrich and Ania Maciolek, ‘Solvent Coarsening around Colloids’, Physical Review E , 97, 042603 (2018).
10. Sutapa Roy , S. Dietrich and Felix Höfling, ‘Structure and dynamics of binary liquid mixtures near their continuous demixing transitions’, Journal of Chemical Physics , 145, 134505 (2016).
9. Subir K. Das, Sutapa Roy and Jiarul Midya, ‘Coarsening in Fluid Phase Transitions’, Comptes Rendus Physique , 16, 303-315 (2015).
8. Sutapa Roy and Subir K. Das, ‘Study of Critical Dynamics in Fluids via Molecular Dynamics in Canonical Ensemble’, European Physical Journal E , 38, 132 (2015).



7. **Sutapa Roy** and Subir K. Das, 'Finite-size Scaling Study of Shear Viscosity Anomaly at Liquid-Liquid Criticality', **Journal of Chemical Physics**, 141, 234502 (2014).
6. **Sutapa Roy** and Subir K. Das, 'Simulation of Transport around the Coexistence Region of a Binary Fluid', **Journal of Chemical Physics**, 139, 064505 (2013).
5. **Sutapa Roy** and Subir K. Das, 'Effects of Domain Morphology on Kinetics of Fluid Phase Separation', **Journal of Chemical Physics**, 139, 044911 (2013).
4. **Sutapa Roy** and Subir K. Das, 'Dynamics and Growth of Droplets close to the Two-Phase Coexistence Curve in Fluids', **Soft Matter** 9, 4178-4187 (2013).
3. **Sutapa Roy** and Subir K. Das, 'Nucleation and Growth of Droplets in Vapor-Liquid Transition', **Rapid Comm. in Physical Review E**, 85, 050602(R) (2012).
2. Subir K. Das, **Sutapa Roy**, Suman Majumder and Shaista Ahmad, 'Finite-size Effects in Dynamics: Critical vs Coarsening Phenomena', **Europhysics Letters**, 97, 66006 (2012).
1. **Sutapa Roy** and Subir K. Das, 'Transport Phenomena in Fluids: Finite-size scaling for critical behavior', **Europhysics Letters**, 94, 36001 (2011).

Congress proceedings

[title, structure, place, year]

[title, structure, place, year]

[title, structure, place, year]

OTHER INFORMATION

TEACHING:

8. Instructor, "Statistical Physics", IIT Gandhinagar, India, 2023.
7. Instructor, "Advanced Statistical Physics", IIT Gandhinagar, India, 2022.
6. Co-instructor, "Introduction to Computing", IIT Gandhinagar, India, 2021.
5. Instructor, "Tools of Theoretical Physics", IIT Gandhinagar, India, 2021.
4. Tutor, "Physics", IIT Gandhinagar, India, 2021.
3. Tutor, Course: Quantum Mechanics, University of Stuttgart, Germany, 2018.
2. Teaching Assistant, Course: Statistical Physics, JNCASR, India, 2012.
1. Teaching Assistant, Course: Statistical Physics, JNCASR, India, 2011.



INVITED TALKS AT INTERNATIONAL CONFERENCES:

7. “[Structure and Dynamics of Chemical and Biomolecular Systems](#)”, India, October 2023,
6. “[International Conference on Soft Materials](#)”, Jaipur, India, Dec 2022.
5. “[Asia-Pacific Conference on Condensed Matter Physics](#)”, organized by Asia-Pacific Physical Society, South Korea, Dec 1-3, 2021.
4. “International Conference on Complex Fluids and Soft Matter [COMPFLU 2019](#)”, Bhopal, India, 2019.
3. “Soft Matter at Interfaces”, Germany, 2019.
2. “3rd International Conference on Soft Materials ([ICSM](#))”, Jaipur, India, 2018.
1. “CECAM International Conference: Statistical mechanics of interfaces: dynamic phenomena”, Berlin, Germany, 2018.

INVITED TALKS AT NATIONAL CONFERENCES:

6. “[Condmate@2023](#)” workshop at Ashoka University, India, April 2023.
5. Conference; “[Current Trends in Statistical Physics](#)”, JNCASR, Bangalore, August 2022.
4. Conference: “[Discussion Meeting on Statistical Physics and Complex Systems](#)”, IIT Kharagpur, India, July 2022.
3. Conference: “[TSU@25](#)”, JNCASR, India, October 2021.
2. Conference: “[Soft Matter Young Investigators Meet-2021](#)”, India, 2021.
1. Invited lectures at a school for Masters level students “[Theoretical Physics School](#)”, India, June 2021.

CONFERENCES ORGANIZED:

- **Co-organizer of an international conference** “Mathematics and Physics of Fluids 2021”, hosted by IIT Gandhinagar, India, 2021.

MEMBERSHIPS OF SCIENTIFIC SOCIETIES:

- Indian Physics Association (life member)



- [Division of Condensed Matter Physics, Asia Pacific Physical Society](#) (2022 onwards).
- The Indian Physical Society, India (life member).

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

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Place and date: _____ Trieste _____, _____10/11/2013_____