TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO ID CODE 5532

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 Fisica Aldo Pontremoli**

Scientist- in – charge: **Prof. Alessio Zacone**

ARABINDA BERA

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Bera
Name	Arabinda

PRESENT OCCUPATION

Appointment	Structure
Research Associate	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore 560064, India

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Bachelor of Science (B.Sc.)	Physics (Hons.)	University of Calcutta	2013
Master of Science (M.Sc.)	Physics	Indian Institute of Technology Madras, Chennai 600036, India	2016
Doctor of Philosophy (Ph.D.)	Pattern Dynamics in Systems of Self-Propelling Particles	Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore 560064, India	PhD thesis defense on December 2, 2022
Degree of medical specialization	NA	NA	NA
Degree of European specialization	NA	NA	NA

Other	NA	NA	NA

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City
16.07.2022	Post-doctoral Research Associate (Provisional), Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore 560064, India	Bangalore

FOREIGN LANGUAGES

Languages	level of knowledge
English	Expert

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2014	Secured All India Rank 44 from Physical Science discipline in National Eligibility Test (NET), India
2016	Junior Research Fellowship, Council of Scientific and Industrial Research, Government of India
2018	Senior Rsearch Fellowship, Council of Scientific and Industrial Research, Government of India

TRAINING OR RESEARCH ACTIVITY

description of activity: My research interests span the broad area of statics and dynamics of pattern formation in active matter systems, mainly focusing on the phase separation process of such systems under different conditions. These are of immense importance in understanding various biological processes and engineering active materials. We developed an efficient simulation method incorporating molecular dynamics and mutiparticle collision dynamics in order to understand the coarsening mechanism of an assembly of aligning active particles in a background solvent medium. This method is the first of its kind, to the best of our knowledge, that reveals the hydrodynamic effects on the coarsening process of the assembly of aligning active particles. We have also reported, for the first time, an interesting and novel structure in the phase separation process of a mixture of active colloids and passive polymers inside a spherical cavity, where we understand and quantify the phenomena of the macroscopic rotation of active colloids around a spheroid formed by the passive polymers inside the cavity via molecular dynamics simulation. We have addressed another important aspect of curvature driven phase separation by considering a mixture of active and passive particles. Here, we have devised a new dynamical equation for alignment interactions among active particles moving on the surface of a sphere, to understand the effects of boundary curvature on the demixing phase separation process. My overall research work has contributed to the development of appropriate methods and understanding of fundamental aspects of phase separation in various active matter systems from a statistical mechanical point of view.

PROJECT ACTIVITY

Year	Project
NA	NA

PATENTS

Patent
NA

CONGRESSES AND SEMINARS

Date	Title	Place
25 Nov - 27 Nov 2021	CompPhys21, 22nd International NTZ-Workshop on New Developments in Computational Physics.	Institute for Theoretical Physics, University of Leipzig, Germany (2021).
03 Dec - 05 Dec 2020	CompPhys20, 21st InternationalNTZ-Workshop on New Developments in Computational Physics	Institute for Theoretical Physics, University of Leipzig, Germany (2020).
19 Feb – 21 Feb 2020	7th Indian Statistical Physics Community Meeting	International Centre for Theoretical Sciences, Bangalore 560089, India
05 Dec - 07 Dec 2019	ComplexFluids Symposium 2019	Indian Institute of Science Education and Research Bhopal, Madhya Pradesh 462066, India.
14 Feb - 16 Feb 2019	6th Indian Statistical Physics Community Meeting	International Centre for Theoretical Sciences, Bangalore 560089, India
27 Aug- 2 Nov 2018	School on Entroy, Information and Order in Soft Matter	International Centre for Theoretical Sciences, Bangalore 560089, India (2018).

PUBLICATIONS

Books
NA

Articles in reviews
Aging phenomena during phase separation in fluids: decay of autocorrelation for vapor-liquid transitions, Soft Matter **15**, 4743 (2019).
How do clusters in phase-separating active matter systems grow? A study for Vicsek activity in systems undergoing vapor-solid transition, Soft Matter **17**, 645 (2021).
Active particles in explicit solvent: Dynamics of clustering for alignment interaction, Phys. Rev.

E **105**, 014606 (2022).
Macroscopic rotation of active colloids in a colloid-polymer mixture confined inside a spherical cavity, arXiv preprint arXiv:2112.00500 (in communication).

Congress proceedings
NA

OTHER INFORMATION

For further information a complete Curriculum Vitae is provided along with the application.

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.

Please DO NOT SIGN this form.

Place and date: Bangalore, December 6, 2022