

July 2018

## **Mustansir Barma**

Tata Institute of Fundamental Research  
TIFR Centre for Interdisciplinary Sciences  
Gopanpally  
Hyderabad - 500107

Tel.: +91-40- 20203084 ; +91-9004416936

Email: [barma@tifrh.res.in](mailto:barma@tifrh.res.in) [barma23@gmail.com](mailto:barma23@gmail.com)

**Personal**                      Born in Mumbai, December 27, 1950

### **Educational Qualifications**

1970                              B.Sc. (Physics and Mathematics)  
   St. Xavier's College, University of Bombay

1974                              Ph.D. (Physics)  
   State University of New York at Stony Brook

### **Academic Positions**

*Current*                              Professor Emeritus at Tata Institute of Fundamental Research, Hyderabad  
   DAE-Homi Bhabha Chair Professor

#### *Earlier*

1974 – 1976                      Research Associate at Michigan State University  
1976 – 1977                      Visiting Fellow at TIFR  
1977 – 2015                      Academic Member at TIFR (retired as Distinguished Professor)

2004 – 2007                      Chair, Department of Theoretical Physics, TIFR  
2007 – 2014                      Director, TIFR

#### *Extended Visits*

1982 – 1984                      Cornell University, U.S.A.  
1991 – 1992                      Oxford University, U.K.

### **Areas of Specialization**

Statistical Physics

Dynamics of Nonequilibrium Systems, Phase Transitions, Disordered Systems

## **Academic Honours, Awards, Affiliations**

Young Scientist Award of the Indian National Science Academy (1980).  
Associate of the Indian Academy of Sciences (1983 – 1986).  
Shanti Swarup Bhatnagar Prize for the Physical Sciences (1995).  
S.N. Bose Birth Centenary Award of the Indian Science Congress (2007).  
J.C. Bose Fellowship of the Department of Science and Technology (2007 – 2017).  
R.S. Goyal Prize for Physics (2006), awarded in 2010.  
Padma Shri award of the Government of India (2013).  
G. M. Modi Award for Innovative Science and Technology (2015).  
DAE-Homi Bhabha Chair Professorship (2018 - ).

## **Fellowship of Academic Bodies**

Fellow of the Indian Academy of Sciences, Bangalore.  
Fellow of the Indian National Science Academy, New Delhi.  
Fellow of the National Academy of Sciences, Allahabad.  
Fellow of the Academy of Sciences for the Developing World (TWAS), Trieste, Italy.

## **Special Lectures**

DAE Raja Ramanna Prize Lecture in Physics, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru (2004).  
Seventh Abdus Salam Memorial Lecture, Jamia Millia Islamia, New Delhi (2009).  
Jawaharlal Nehru Lecture of the Indian National Science Academy, University of Hyderabad (2014).  
First B.K. Mahanti Memorial Lecture, Ravenshaw University, Cuttack (2015).  
DAE C.V. Raman Lecture of the Indian Physics Association, St. Xavier's College, Mumbai (2015).  
Third Father Verstraeten Memorial Lecture, St. Xavier's College, Kolkata (2015).  
Fourth S. S. Bhatnagar Anniversary Lecture, Panjab University, Chandigarh (2016).  
Horizon Lecture, Tezpur University (2016).

## **Membership of Commissions, Juries and Advisory Bodies**

Member, International Jury for the L'Oreal-UNESCO Award for Women in Science (2002 – 2003).  
Member, IUPAP C3 Commission on Statistical Physics (1999 – 2002).  
Chairman, IUPAP C3 Commission on Statistical Physics (2002 – 2005).  
Vice-President at large, IUPAP (2009 – 2014).  
Member, Scientific Advisory Committee to the Cabinet (2008-2012).  
Member, Scientific Advisory Council to the Prime Minister (2010 – 2014).

## **Membership of Professional Societies and Editorial Boards**

Member of the Indian Physics Association.  
Member of the Indian Complex Systems Society.  
Member of the Indian Science Congress.  
On Editorial Board of Pramana – Journal of Physics (1989 – 1995).  
On Editorial Working Committee of Physics News (1993 – 1999).  
On Editorial Board of the Journal of Statistical Physics (1997 – 1999; 2003 – 2009).  
On Editorial Board of Proceedings of the Royal Society A: Mathematical, Physical & Engineering (2017 - )  
On Editorial Board of Journal of Physics A: Theoretical and Mathematical (Institute of Physics) (2018 - )

## **Academic Affiliations and Membership of Boards**

Honorary faculty member, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore (1998 – 2001).  
Member, Board and Executive Council of the Institute of Mathematical Sciences, Chennai (2001 – present).  
Member, Council of the Saha Institute of Nuclear Physics, Kolkata (2008 – present).  
Adjunct faculty member, Ramakrishna Vivekananda University, Belur (2018 - ).

## **Organization of Conferences, Workshops and Schools**

Workshop on Dynamics of Nonequilibrium Systems, ICTP, Trieste, August 1996  
(with A. Maritan and R.B. Stinchcombe).

Workshop on Dynamics of Nonequilibrium Systems, ICTP, Trieste, August 1999  
(with A. Maritan and R.B. Stinchcombe).

SERC School on Statistical Physics, TIFR, Mumbai, February 2004  
(with D. Dhar).

22<sup>nd</sup> IUPAP International Conference on Statistical Physics (STATPHYS 22) Bangalore, July 2004  
(Chair, Steering Committee).

Meeting on Nonequilibrium Dynamics: Diffusion, Populations and Aging, TIFR Hyderabad, June 2017  
(with P. Perlekar)

## **Ph.D. Students Guided**

V. Subrahmanyam (1991) Faculty at I.I.T. Kanpur.

Supriya Krishnamurthy (1998) Faculty at Royal Institute of Technology, Stockholm.

Goutam Tripathy (1999) Faculty at Institute of Physics, Bhubaneswar.

Dibyendu Das (2001) Faculty at I.I.T. Mumbai.

Kavita Jain (2004) Faculty at Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore.

Apoorva Nagar (2006) Faculty at Indian Institute of Space Science and Technology, Thiruvananthapuram.

Sakuntala Chatterjee (2007) Faculty at S.N. Bose Centre for Basic Sciences, Kolkata.

Shamik Gupta (2008) Faculty at Ramakrishna Mission Vivekananda University, Kolkata.

Himani Sachdeva (2014) Post-doctoral Fellow at Institute of Science and Technology, Vienna.

## **Invited Talks in Conferences, Workshops and Meetings (2007 onwards)**

1. 'Clustering of Sliding Passive Scalars Driven by Fluctuating Surfaces'  
23<sup>rd</sup> IUPAP International Conference on Statistical Physics – Statphys 23 (Genova, Italy, July 2007).
2. 'Driven Dimers'  
Fluctuation and Dissipation Phenomena in Driven Systems Far from Equilibrium (Dresden, July 2007).
3. 'Coupled Nonequilibrium Systems'  
The 10<sup>th</sup> Asia Pacific Physics Conference (APPC10), (Pohang, Korea, August 2007).
4. 'Periodic Forcing of a Brownian Particle in Classical and Quantum Mechanics' Nonequilibrium Phenomena in Condensed Matter (New Delhi, February 2008).
5. 'Coupled Nonequilibrium Systems'  
Current Trends in Physics (IIT Madras, Chennai, February 2008).
6. 'Diffusing Reconstituting k-mers'  
TIFR-Weizmann Institute Interaction Meeting (Rehovot, Israel, June 2008).
7. 'Particles in Fluctuating Potentials'  
Nonlinear Dynamics and Turbulence (IISc, Bangalore, July 2008).
8. 'Simple Models of Complex Behaviour'  
Indian Academy of Sciences (IIT Delhi, New Delhi, October 2008).
9. 'Statistical Physics and Everyday Life'  
Andhra Akademi of Sciences (Osmania University, November 2008)
10. 'Statistical Physics: Historical Developments and Current Trends'  
52<sup>nd</sup> DAE Solid State Physics Symposium (Mumbai, December 2008).
11. 'Driven Dimers'  
Disorder, Complexity and Biology II (Banaras Hindu University, January, 2009).

12. 'Interacting Random Walkers with Fluctuating Bias'  
Non-Hermitian Hamiltonians in Quantum Physics (BARC-TIFR, Mumbai, January 2009).
13. 'Drift and Diffusion in Random Media'  
Indo-French Discussion Meeting on Diffusion in Nanoporous and Dense Media (Bangalore, April 2009).
14. 'Fluctuation-driven phase ordering'  
Frontiers in Physics (Indian Institute of Science, Bangalore, May 2009).
15. 'Entropy-induced ordering'  
ICTS Workshop on Non-equilibrium Statistical Physics, Meghnad Saha Lecture, (IIT Kanpur, February 2010).
16. 'Transport in a Multispecies Model with Interconversion'  
105<sup>th</sup> Statistical Mechanics Meeting, (Rutgers University, New Brunswick, May 2011).
17. 'Entropy and Order'  
Mid-year meeting of the Indian Academy of Sciences (Bangalore, July 2011).
18. 'Phase Transition in a Multispecies Model'  
5<sup>th</sup> Indo-Israeli Meeting on Condensed Matter Physics (Kochi, October 2011).
19. 'Phase Transition on an Open Aggregation-Fragmentation System'  
International Workshop on Statistical Mechanics and Dynamical Systems (ITAP, Turunc, Turkey, September 2012).
20. 'Phase Transitions and Intermittency in Open Aggregation-Fragmentation systems'  
Complex Systems: From Physics to Biology (JNU, New Delhi, October 2013).
21. 'Aggregation-Fragmentation Dynamics'  
Nonequilibrium Statistical Physics and Nonlinear Dynamics (IACS, Kolkata, January 2014).
22. 'Condensation and Intermittency in an Aggregation-Fragmentation Model'  
Advances in Nonequilibrium Statistical Mechanics (Galileo Galilei Institute, Florence, July 2014).
23. 'Order parameter scaling in fluctuation-dominated Phase Ordering'  
Growing Length Scale Phenomena in Condensed Matter Physics (JNCASR, Bengaluru, October 2015)
24. 'Fluctuation-dominated Phase Ordering'  
Workshop on Nonequilibrium Statistical Physics (ICTS-TIFR, Bengaluru, October 2015).
25. 'Aggregation, Fragmentation and Phase Transitions in 1D Systems'  
Driven Stochastic Transport in Low-dimensional Systems (Institute for Research in Fundamental Sciences, Tehran, Iran, September 2016).
26. 'Degrees of Order in Coupled Driven Systems',  
Statphys-Kolkata IX (Saha Institute of Nuclear Physics, Kolkata, December 2016)
27. 'Interfaces in Random Media: Extremal Dynamics and Passive Scalars'  
Discussion Meeting on Percolation Phenomena (S. N. Bose Centre for Basic Sciences, Kolkata, January 2017).
28. 'Time Evolution of Intermittency in the Passive Slider Problem'  
International Conference on Recent Advances in Condensed Matter Physics and Complex Systems (Savitribai Phule Pune University, October 2017).
29. 'Away from the Average: The Physics of Fluctuations'  
Workshop on Theoretical Physics (Ramakrishna Mission Vivekananda University, Kolkata, December 2017).
30. 'Clustering and Intermittency in the Passive Scalar Problem'  
SRITP Workshop on Correlations, Fluctuations and Anomalous Transport in Systems far from Equilibrium, Weizmann Institute, Rehovot, Israel (January 2018).
31. 'Phase Transitions in two-component Nonequilibrium Systems'  
UGC Workshop on Soft and Active Matter, University of Hyderabad (February 2018)
32. 'Fluctuations and Order'  
Conference on Frontiers of Statistical Physics, ISI Kolkata (February 2018)
33. 'Time Evolution of Intermittency in the Passive Slider Problem'  
Workshop on Emergent Phenomena in Classical and Quantum Systems, S. N. Bose Centre for Basic Sciences, Kolkata (February 2018)
34. 'Stochastic Evolution of Interacting Particle Systems'  
Workshop on Long-range Interactions and Synchronization, ICTP-SAIFR, Sao Paulo (May 2018)

