CV

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Date of Birth: 01-01-1966

Education:

8/87 – 9/92 **Tata Institute of Fundamental Research** **Bombay, India**
Ph.D. in Physics, September 1992.
Thesis: Self-organized Criticality in Sandpiles and Driven Diffusive Lattice Gases.
Advisor: Prof. Deepak Dhar, Tata Institute, Bombay, India.

9/85 – 7/87 **University of Calcutta** **Calcutta, India**
M.Sc in Physics, 1987 (ranked 1st among approx. 200)

9/81 – 8/85 **Presidency College** **Calcutta, India**
B.Sc in Physics, University of Calcutta, 1985 (ranked 1st among approx. 2500)

Employment:

10/11 – present: Directeur de Recherche (DR1) at **Laboratoire de Physique Théorique et Modèles Statistiques, Université Paris-Sud, Orsay, France**.

09/03 –09/11: Directeur de Recherche (DR2) at **Laboratoire de Physique Théorique et Modèles Statistiques, Université Paris-Sud, Orsay, France**.

01/00 – 09/03: Chargé de Recherche (CR1) at **UMR 5626 du CNRS, IRSAMC, Université Paul Sabatier, Toulouse, France**.

11/96 – 12/99 Reader at **Tata Institute of Fundamental Research, Bombay, India**.

10/94 – 10/96 Post Doctoral Associate at **Yale University, USA**.

10/92 – 09/94 Post Doctoral fellow at **AT&T Bell Labs, USA**.

08/87 – 09/92 Thesis student and Research Assistant at **Tata Institute of Fundamental Research, Bombay, India.**

Honors and Awards:

1. **Gay-Lussac Humboldt** prize (awarded by the Alexander von Humboldt foundation, 2019).

2. **EPS** prize for Statistical and Nonlinear Physics (2019).

3. **CNRS** silver medal (medaille d'argent) (2019).

4. **VAJRA** fellowship (Visiting Adjoint Research Associate) awarded by the ministry of Science and Technology (Govt. of India) in 2018.

5. **Plenary** speaker at STATPHYS-25 (Seoul, South Korea, 2013).

6. **Plenary** speaker at 'Extreme Value Analysis' (EVA 2011) (Lyon, France, 2011).

7. **'Prime d'excellence Scientifique'** (PES) (2009-2012, 2013-2016, 2017-) awarded by CNRS.

8. **'Excellence Award'** (2009) for outstanding contributions to statistical physics, awarded by the Tata Institute Alumni Association.

9. **Paul Langevin Medal** for theoretical physics (2005) awarded by the French physical society.

10. **Young Scientist Medal** awarded by the Indian National Science Academy, 1998.

11. **Geeta Udgaonkar Award**, 1992 for outstanding thesis in the school of Physics (Tata Institute, Bombay, India).

12. **Calcutta University Gold Medal** for securing first position in M.Sc (Calcutta University, India, 1987).

Editor of Journals:

• Divisional Associate Editor (DAE) of Phys. Rev. Lett. (2011-2013).

• Associate editor of Journal of Statistical Physics (since 2011). Previously, member of the editorial board of Journal of Statistical Physics (2008-2010).

• Currently, a member of the executive board of Journal of Physics A: Math. Theor. I also served as the chief Section editor (Statistical Physics) of the J. Phys. A (2019-2021). Previously, a member of the editorial board during (2010-2016). Since 2016, member in the panel 'Fast track communications' in J. Phys. A: Math. Theor. (2016–)

• Member of the editorial board of Journal of Statistical Mechanics: Theory and Experiment (since 2003).

Honorary Positions:

• Adjunct Professor at Tata Institute, Bombay, India (since 2005).

• Adjunct Weston Professor at the Weizmann Institute, Rehovot, Israel (since 2011).

• Adjunct Professor at the International Center for Theoretical Sciences (ICTS), Bangalore, India (since 2011).

• Associate at the Higgs Centre, University of Edinburgh, UK (since 2012).

• Adjunct professor at the Raman Research Institute, Bangalore, India (since 2015).

• Visiting Simon chair at the International Center for Theoretical Sciences (ICTS), Bangalore, India during September-October, 2017.

Publications and Invited Talks:

• **322** publications in reviewed journals (including **68** PRL's, 1 Science, 1 PNAS, 1 Adv. in Phys.), 4 conference proceedings and 9 invited reviews/book chapters. *Total number of citations: 16445/11511 (source: Google Scholar (GS)/ISI web of Science (ISI), dated 19/11/2021) with an h-index:* 66/55 *(GS/ISI).*

• **153** invited talks in international conferences/workshops/summer schools since (1996).

Named Lectures:

(i) M. L. Mehta memorial lecture (February, 2011) at the Tata Institute of Fundamental Research, Bombay, India.

(ii) Subhramanyam Chandrasekhar lectures (January, 2012) at the International Center for Theoretical Sciences (ICTS), Bangalore, India.

(iii) Higgs colloquium at the Higgs Center, the University of Edinburgh (UK) (May, 2013).

(iv) K. Lakshmanan Memorial distinguished lecture at CMI (Chennai mathematical Insitute, Chennai) (India) (January, 2017).

(v) J. Mahanty memorial lecture at Indian Institute of Technology (IIT) (Kanpur) (India) (October, 2017).

(vi) P. S. Narayanan memorial lecture at the Indian Institute of Science (IISC) (Bangalore) (India) (December, 2019).

(vii) Infosys-Chandrasekhar colloquiuum at the Tata Insititute of Fundamental Research (Bombay) (India) (March, 2021).

Supervision of students and postdocs:

4 current Ph.D students, 14 (completed) Ph.D students (supervision and co-supervision), 8 M.Sc students and 8 postdocs.

International collaborations: I have collaborated with more than 100 international scientists for the last 30 years. They include mathematicians on one hand and experimentalists on the other. A detailed list can be found in my extended CV in my home page: http://lptms.u-psud.fr/satya-majumdar/

Referee of Journals and Grants:

Since 1992, papers were regularly reviewed for several international journals including Physical Review Letters, Physical Reviews (A, B, E), Nature Physics, Europhys. Lett., Journal of Physics-A, Journal of Statistical Physics, Journal of Statistical Mechanics, Physica-A, IEEE transactions in Information Theory etc. The grant proposals for the Agence National de Research (ANR, France), National Science Foundation (NSF, USA) and the Israel Science Foundation (ISF, Israel)) were also reviewed.

Recognized as a 'distinguished referee' by the EPL (Europhysics Letters) (2010).

Administrative Responsibilities:

I have been a member of various scientific commissions in and outside France. These include the following:

• Member of the commission de spécialistes (section 29) at the Université Paul Sabatier, Toulouse, France (2004-2009).

• Member of the 'Comité d'évaluation' of the Laboratoire de Physique Théorique (LPTENS) at Ecole Normale Superieure, January (2005).

• Elected member of the 'Conseil de laboratoire LPTMS' since November, 2005.

• Member of the 'Comité d'évaluation' (AERES) of the Laboratoire de Physique Théorique (LPTENS) at Ecole Normale Superieure, January (2009).

• Member of the 'Appointments Committee' of the International Center for Theoretical Studies (ICTS) at Bangalore, India, since 2011.

• Member of the comité de selection (section 29) (concours de recruitement MCF) at the Universite' Aix Marseille, April, 2012.

• Member of the comité de selection (section 29) (concours de recruitment Prof.) at the Universite' de Cergy-Pontoise, April, 2014.

• Member of the evaluation committee for IRMP (Institut de Recherche en Mathematique et Physique, Université catholique de Louvain, Belgium), March, 2018. I am also a member of the scientific advisory board of IRMP since 2018.

• Member of the advisory board of "Fundamental Problems in Statistical Physics" (FPSP) since 2015.

• Member of the International Advisory Board of Statphys 28 (to be held in Tokyo, 2022).

Research Topics :

My research interests cover various problems in equilibrium and nonequilibrium statistical physics with applications in physics, computer science and biology. Some of the past and present projects are listed below.

• *Extreme Value Statistics of Strongly Correlated Variables*: two particularly interesting strongly correlated systems where we made much progress in recent years: (i) (i) Brownian Motion and various related stochastic processes (ii) Eigenvalues in random matrices. Other questions related to extremes have also been studied, such as the statistics of the fluctuations in the positions of fermions confined in an external potential (trapped cold atoms), number of extrema in a random landscape, integer partition problem, level density of Bose gas and its relation to extreme statistics, zeroes of random polynomials and longest excursions in stochastic processes in nonequilibrium systems etc.

• *Stochastic processes with resetting*: We have shown recently that stochastic processes subject to random resetting to its initial condition leads to novel nonequilibrium steady states. Also stochastic search algorithmics become more efficient in the presence of resetting. The phenomena of **'Resetting'** has become a very popular topic in recent years with diverse

applications and this field of research was initiated by myself and collaborators about 10 years back. In 2021, J. Phys. A is bringing out a special issue to honor our original article published in Phys. Rev. Lett. **106**, 160601 (2011).

• *Order, Gap & Record Statistics for Stochastic Time Series:* Various other questions related to extreme statistics have also been studied, such as the order and the gap statistics, record statistics, density of near-extreme events etc. in random walks and related stochastic processes.

• *Diverse applications of Random Matrix Theory:* My current/ongoing research involves various applications of the random matrix theory such as the study of (i) fluctuations of the number of eigenvalues in a given spectral interval–the so called Index problem (ii) transport in mesoscopic cavities (ii) distribution of entanglement entropy in random pure states of bipartite systems (iv) nonintersecting Brownian motions and its connection to Yang-Mills gauge theory (v) matrix integrals and the associated fluid dynamics. Also, I have studied various integrable models related to random matrices, such as random growth models, biological sequence matching problems, random permutations etc.

• *Applications of Statistical Physics in Computer Science: Sorting and Search Algorithms.*

• *Persistence and first-passage properties in Nonequilibrium Systems:* Spin Models, Diffusion and Random Walks, Random Search problems, Non-Markov Processes etc.

• *Stress Propagation and Compaction in Granular Medium.*

• *Real-space Condensation in Nonequilibrium Steady-States:* Aggregation and fragmentation processes, Zero-range processes, Random Average processes etc.

• *Quantum Phase Transitions in Disordered Spin Chains.*

• *Coarsening and Phase Ordering Dynamics in Spin Systems.*

• *Transport Properties of Vortices in High-T_c Superconductors.*

• *Interacting Particle Systems:* Symmetric and Asymmetric Exclusion Processes, Vicious random walkers, Trapping problems etc.

• *Polymers and Self-Avoiding Walks.*

• *Self-organized Criticality in Sandpile Models* (Ph.D Thesis, 1992).

List of 10 most cited papers:

Citation source: Google Scholar (GS) /ISI web of science (ISI) (dated 19/11/2021)

(1) C.-h. Liu, S.R. Nagel, D.A. Schecter, S.N. Coppersmith, S. Majumdar, O. Narayan and T.A. Witten, "Force Fluctuations in Bead Packs", **Science**, v-269, 513 (1995). [**citations:**

969/656 (GS/ISI)]

(2) S.N. Coppersmith, C.-h. Liu, S. Majumdar, O. Narayan and T.A. Witten, "Force Fluctuations in Bead Packs-II", **Phys. Rev. E**, v-53, 4673 (1996). [**citations: 580/361 (GS/ISI)**]

(3) S.N. Majumdar and D. Dhar, "Equivalence of the Abelian Sandpile Model and the $q- > 0$ Limit of the Potts Model", **Physica A**, v-185, 129 (1992). [**citations: 347/215 (GS/ISI)**]

(4) A. J. Bray, S. N. Majumdar, and G. Schehr, " Persistence and first-passage properties in nonequilibrium systems", Adv. in Phys. v-62, 225-361 (2013). [**citations: 363/274 (GS/ISI)**]

(5) M.R. Evans and S. N. Majumdar, "Diffusion with Stochastic Resetting", **Phys. Rev. Lett.** v-106, 160601 (2011). [**citations: 346/261 (GS/ISI)**]

(6) S. N. Majumdar, "Persistence in Nonequilibrium Systems", **Current Science**, v-77, 370 (1999). [**citations: 315/261 (GS/ISI)**]

(7) S. N. Majumdar, "Brownian functionals in physics and computer science", **Current Science**, v-89, 2076 (2005). [**citations: 249/181 (GS/ISI)**]

(8) S.N. Majumdar, C. Sire, A.J. Bray and S.J. Cornell, "Nontrivial Exponent in Simple Diffusion", **Phys. Rev. Lett.**, v-77, 2867 (1996). [**citations: 226/177 (GS/ISI)**]

(9) J. Krug, H. Kallabis, S.N. Majumdar, S.J. Cornell, A.J. Bray and C. Sire, "Persistence Exponents for Fluctuating Interfaces", **Phys. Rev. E**, v-56, 2702 (1997). [**citations: 221/172 (GS/ISI)**]

(10) D. Dhar and S. N. Majumdar, "Abelian sandpile model on the Bethe lattice", J. Phys. A: Math. Gen. v-23, 4333 (1990). [**citations: 201/131 (GS/ISI)**]

1 Principal Scientific Contributions, Achievements and Impact

To summarize, I have worked on a broad range of subjects in statistical physics with applications ranging from granular systems all the way to computer science and biology. Despite the diversity of the subjects, there are two basic themes that are common to most of my work:

(i) the physical systems that I am interested in usually involve many degrees of freedom which are '**interacting**' or '**correlated**' and

(ii) there is usually an element of '**randomness**' in them. I mean '**randomness**' in a rather broad sense here: for example, it can be the 'frozen' disorder as in spin-glasses or it can be the 'noise' or 'stochasticity' in the temporal evolution of a system. In the context of data structures and algorithm problems in computer science, 'randomness' is in the underlying data structures.

In the general spirit of statistical physics, my research methods consist in constructing simple yet nontrivial models that essentially capture the physics of the more complicated real systems and then try to solve these models analytically to understand the basic physical mechanism involved behind the collective behavior of the underlying many body systems. The results I have obtained are predominantly analytical in nature. *Many of them are first exact results in the fields.* In my opinion, my principal and most original contributions so far have been in the following areas:

(1) *Self-organized criticality in sandpile models:* (Ph.D thesis, 1992) Exact solution of the Abelian sandpile model (ASM) on the Bethe lattice, exact height-height correlations in ASM, an exact mapping between the avalanche size distribution in ASM and the clusters in the q-state Potts model in the limit $q \to 0$. These results have made impact both in Physics and Mathematics.

(2) *Stress propagation in granular systems:* We contributed two pionnering papers in this field. Our model, now known as the q-model in the literature, describes how an applied stress on a granular heap propagates through the heap our analytical results are verified in experiments in Chicago. Refs: Science, 269, 513 (1995) and Phys. Rev. E, 53, 4673 (1996).

(3) *Persistence in nonequilibrium systems:* Exact solutions for the first-passage probability for various Markov and Non-Markovian stochastic processes: contributed > 50 papers including 15 PRL's with more than 1500 citations and an extensive recent review on the subject jointly with A.J. Bray and G. Schehr: "Persistence and first-passage properties in nonequilibrium systems", Adv. in Phys. 62, 225-361 (2013).

(4) *Real-space condensation in nonequilibrium steady states:* In many systems where there is a transfer of mass or energy from one sppace point to another, a condensation phenomenon can occur in real space, i.e., at long times the system might develop a single point in space with a thermodynamically large fraction of mass condensing there. Our exact solutions of various mass transport models have shed important lights on this phenomena, in particular in characterizing the nature of the condensate.

(5) *'Sorting and Search' problems in computer science:* An exact mapping between binary search tree problem and the directed polymer problem in random medium helped identify a fundamental 'travelling front' structure in sorting and search algorithms. Many asymptotic results on the efficiency of search algorithms could be derived using this method.

(6) *Extreme value statistics of correlated variables:* with applications in Diffusion, Brownian motion and other stochastic processes such as fluctuating interfaces (60 papers including 19 PRL's). Very recently, we have written a comprehensive review on this subject: S. N. Majumdar, A. Pal, G. Schehr, "Extreme value statistics of correlated random variables: A pedagogical review", Phys. Rep. v-840, 1 (2020).

(7) *Random Matrix Theory:* with applications that involve (i) growth models (ii) bilological sequence matching (iii) large deviations of the extreme eigenvalues (iv) conductance distribution in quantum dots (v) bipartite entanglement in random pure quantum states (vi) non-intersecting Brownian motions and Yang-Mills gauge theory (vii) Trapped fermions and the physics of ultracold gases (40 papers including 15 PRL's).

(8) *Stochastic resetting and its applications:* It is a new field of research in statistical physics, in connection with random search via diffusive processes, introduced in collaboration with M. R. Evans (Edinburgh, UK) in: M. R. Evans and S. N. Majumdar, "Diffusion with Stochastic Resetting", Phys. Rev. Lett. v-106, 160601 (2011). **In 2021, Phys. Rev. E has declared it as the 'PRE spotlights of 'emergent areas' and J. Phys. A is bringing out a special issue honoring this work**. We have recently written an exhaustive review on the subject: M. R. Evans, S. N. Majumdar, and G. Schehr, "Stochastic resetting and applications", J. Phys. A. : Math. Theor. v-53, 193001 (2020).

(9) *Order, Gap and Record statistics for stochastic time series:* We have introduced new analytical tools to study the statistics of records and orders for strongly corelated time series with a wide ranging applications from climates to finance. Currently, with G. Schehr, we are writing a book on this subject (Oxford University Press).

The strong points of my scientific research are:

(1) *Diversity of subjects* (Extreme Value Statistics, Random Matrix theory and applications, first-passage properties in out of equilibrium systems, Brownian motion and its diverse applications, stochastic resetting, statistics of records, gaps and orders in stochastic processes, sorting and search problems in computer science, transport in high temp. superconductors, stress propagation in granular systems, self-organized criticality in sandpile models, etc.)

(2) *Development of novel analytical techniques* for simple yet nontrivial and outstanding problems

(3) *Strong international collaborations* (more than 100 collaborators internationally) and (¿30 collaborators in France). In LPTMS I have collaborated with 12 permanent members

(4) Many of my results are *first exact results* in the field

(5) *Useful applications* of my results : many of my analytical predictions have been verified

experimentally.

Achievements and Impact:

My collective work includes **322** publications (till 19/11/2021) in reviewed journals (including **68** PRL's, 1 Science, 1 PNAS etc.), 4 conference proceedings and 9 invited reviews and book chapters. They have gathered 16445/11511 citations (source: Google Scholar/ISI web of Science, dated 19/11/2021) with an h-index: 66/55 (GS/ISI).

I also gave 153 invited talks over the last 25 years in international conferences/workshops/summer schools (including the **plenary** talks at STATPHYS-25 (Seoul, 2013) and 'Extreme Value Analysis' (Lyon, 2011). I have also taught in various prestigious summer schools in statistical physics including Les Houches, Beg-Rohu, Leuven, Bangalore etc. In addition, I have been invited to give several prestigious named lectures/colloquiuum across the world, including M. L. Mehta lectures (Tata Institute, India), S. Chandrasekhar lectures (ICTS, India), Higgs Colloquiuum (Edinburgh University, UK) etc.

I have received several international honors/awards during my career. Very recently, I gave a **plenary** lecture at STATPHYS-25 (Seoul, South Korea, 2013)–the biggest conference in statistical physics held every three years in different countries. Also, I was a **plenary** speaker at one of the important conferences in Statistics, namely, 'Extreme Value Analysis' (EVA) (Lyon, France, 2011), held every three years in different countries. I received the 'Geeta Udgaonkar medal' (for outstanding Ph.D thesis at Tata Institute in 1992) and later the 'Young Scientist medal' awarded by the Indian National Science Academy in 1998. In France I received the "Prix Paul Langevin" of the French Physical Society in 2005. Since 2009, I am a recipient of the 'Prime d'excellence Scientifique' (PES) awarded by CNRS in France. Also, in 2009, I recieved the 'Excellence Award' (2009) for outstanding contributions to statistical physics from the prestigious Tata Institute Alumni Association. In 2018, I was awarded the prestigious VAJRA fellowship of the department of Science and Technology of the government of India.

In 2019, I received three prestigious prizes. I was the recipient of the **EPS (European Physical Society) prize** for Statisical and Nonlinear Physics (jointly with S. Ciliberto from ENS-Lyon).

The citation for my EPS prize reads:

The 2019 EPS-SNPD prize is awarded to Satya Majumdar

" *for his seminal contributions to non-equilibrium statistical physics, stochastic processes, and random matrix theory, in particular for his groundbreaking research on Abelian sand-piles, persistence statistics, force uctuations in bead packs, large l* deviations of eigenvalues of random matrices, and applying the results to cold atoms and other physical systems."

http://www.epsnews.eu/2019/03/eps-snpd-prizes-2019/

In 2019, I was awarded the **CNRS silver medal (medaille d'argent)**. Also, in 2019, I received the **Gay-Lussac-Humboldt prize** from the Alexander von Humboldt foundation in Germany for my outstanding contributions to Statistical Physics.

I have been the divisional associate editor of PRL (2011-2013). Currently I am an associate editor of J. Stat. Phys. (since 2008) and also a member of the editorial board of J. Phys. A: Math. Theor. (since 2010), J. Stat. Mech. (since 2003) and Pramana: J. of Phys.(since 2014).

The impact and the international visibility of my work is reflected in a number of news articles/research highlights in science journals. Here are few examples:

• The citation for my EPS prize can be found in the official EPS website:

http://www.epsnews.eu/2019/03/eps-snpd-prizes-2019/

• Following my EPS prize and CNRS silver medal in 2019, the following press article appeared in the official Universite Paris-Saclay website:

https://www.universite-paris-saclay.fr/en/news/satya-majumdar-modeling-the-random

• My recent work with E. Trizac on 'When random walkers help solving intriguing integrals' (Phys. Rev. Lett., 123, 020201 (2019)) got highlighted in Physics Today (Search and Discovery):

https://physicstoday.scitation.org/do/10.1063/PT.6.1.20190808a/full/

It also got a press coverage in Phys.org:

https://phys.org/news/2019-07-illusive-patterns-math-ideas-physics.html

• A popular science article on our work on third order phase transition behind the universality of Tracy-Widom distribution, written by Natalie Wolchover appeared in the Quanta magazine (published by Simon's foundation) in the October 15 (2014) issue, with the title "At the Far Ends of a New Universal Law".

This can be found online at: https://www.quantamagazine.org/20141015-at-the-far-ends-of-a-new-universal-law/

• My work with Gregory Schehr on the large deviations of the top eigenvalue of a random matrix and the ubiquity of third order phase transitions (see Ref. [188] in the list of publications) was recently highlighted by the CNRS-Institut National de Physique (INP) with the title "Luniversalité de la distribution de Tracy-Widom proviendrait dune transition de phase"

see online at: http://www.cnrs.fr/inp/spip.php?article3403

• "Equivalence Principle", an essay by M. Buchanan, published in **Nature Physics**, **10**, 543 (August, 2014), based on my talk on "KPZ/Tracy-Widom story" given at the international conference "Viewpoints on Emergent Phenomena in Non-equilibrium Systems", held at the Higgs Centre for Theoretical Physics, University of Edinburgh, UK, June, 2014.

see http://www.nature.com/nphys/journal/v10/n8/pdf/nphys3064.pdf

• An article 'A walk in the park' that appeared in the research highlights section of **Nature Physics** [Nature Phys., **4**, 829 (2008)] that reviewed my work on the connection between vicious walkers problem and random matrix theory [with G. Schehr, A. Comtet and J. Randon-Furling, published in Phys. Rev. Lett. 101, 150601 (2008)].

see http://www.nature.com/nphys/journal/v4/n11/full/nphys1119.html

• "Une puce qui saute au hasard" (**La Recherche**, mathmatiques - 01/10/2005 par Benot Rittaud dans mensuel n390 la page 26), that reviewed my work with A. Comtet on us the maximum of a random walk (published in J. Stat. Mech. P06013 (2005)).

see http://www.larecherche.fr/actualite/mathematiques/ puce-qui-saute-au-hasard-01-10-2005-71971

• "Persistence Pays Off in Defining History of Diffusion" by A. Watson in the research news section of **Science** [vol-274, page 919-920, 1996], that reviewed my work on persistence in diffusion equation [with A.J. Bray, S.J. Cornell and C. Sire, published in Phys. Rev. Lett. **77**, 2867 (1996)].

see https://www.sciencemag.org/content/274/5289/919

• "Clues About How a Sand Pile Holds Itself Up:Scientists Get 3-D View of Force Chains in Granular Materials" by S. Koppes (University of Chicago press news) that reviewed our work on the force chains in granular materials [published in **Science**, 269, 513 (1995)].

see http://www-news.uchicago.edu/releases/95/950820.granular.forces.shtml

Complete List of Publications and Invited Talks
Satya N. Majumdar

• **322** published papers in reviewed journals and **153** invited talks in international conferences

• **Total no. of citations till 19/11/2021 : 16445/11511 (Google Scholar (GS)/ISI Web of Science (ISI))**

• **h-index: 66/55 (GS/ISI)**

(*Two of my most cited papers, numbered below respectively (19) (with 969/656 citations (GS/ISI)) and (21) (with 580/361 citations (GS/ISI)) appear under the initials S. Majumdar and not S.N. Majumdar)*

In Journals (The number of papers with more than 100 citations in (GS) on 19/11/2021 are indicated):

Journals	*Numbers*
Advances in Physics	*1*
Physics Reports	*1*
Science	*1*
PNAS	*1*
Physical Review Letters	*68*
Physical Review Research	*2*
Physical Review E Rapid	*11*
Physical Review A Rapid	*1*
Physical Review E	*79*
Physical Review A	*8*
Physical Review B	*4*
Europhysics Letters	*9*
Journal of Chemical Physics	*2*
Biophysical Journal	*1*
Journal of Physics-A	*55*
Journal of Physics-C	*1*
Journal of Statistical Physics	*18*
Journal of Statistical Mech.: Th. Exp.	*42*
Nuclear Phys. B	*1*
Physica A	*5*
Physica C	*1*
Annals of Physics	*1*
J. Math. Phys., Analysis and Geometry	*1*
Chaos, Solitons, and Fractals	*1*
Quantitative Finance	*1*
SciPost	*2*
Current Science	*2*
Markov Proc. Rel. Fields	*1*
Eur. J. Phys. E	*1*
Total	*322*

(1) S.N. Majumdar, "An Ideal Polymer Chain in Arbitrary Dimensions Near an Attractive Site", Physica A, v-169, 207 (1990).

(2) D. Dhar and S.N. Majumdar, "Abelian Sandpile Model on the Bethe Lattice", J. Phys. A: Math. Gen., v-23, 4333 (1990). [**citations: 199 (GS)**].

(3) S.N. Majumdar and D. Dhar, "Height Correlations in the Abelian Sandpile Model", J. Phys. A: Math. Gen., v-24, L357 (1991). [**citations: 181 (GS)**]

(4) S.N. Majumdar and M. Barma, "Tag Diffusion in Driven Systems, Growing Interfaces and Anomalous Fluctuations", Phys. Rev. B, v-44, 5306 (1991).

(5) S.N. Majumdar and M. Barma, "Two-tag Correlation Functions in One Dimensional Lattice Gases", Physica A, v-177, 366 (1991).

(6) S.N. Majumdar, "Exact Fractal Dimension of the Loop Erased Self-avoiding Walk in Two Dimensions", **Phys. Rev. Lett.**, v-68, 2329 (1992).

(7) S.N. Majumdar and D. Dhar, "Equivalence of the Abelian Sandpile Model and the $q- > 0$ Limit of the Potts Model", Physica A, v-185, 129 (1992). [**citations: 346 (GS)**]

(8) S.S. Manna, D. Dhar and S.N. Majumdar, "Spanning Trees in Two Dimensions", Phys. Rev. A Rapid Communications, v-46, R4471 (1992).

(9) M. Paczuski, M. Barma, S.N. Majumdar and T. Hwa, "Fluctuations of a Nonequilibrium Interface", **Phys. Rev. Lett.**, v-69, 2735(C) (1992).

(10) S.N. Majumdar and C. Sire, "Phase Separation Model with Conserved Order Parameter on the Bethe Lattice", **Phys. Rev. Lett.**, v-70, 4022 (1993).

(11) S.N. Majumdar and V. Privman, "Annihilation of Immobile Reactants on the Bethe Lattice", J. Phys. A: Math. Gen. v-26, L743 (1993).

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(285) M. Battilana, S. N. Majumdar, and G. Schehr, "Universal Gap Statistics for Random Walks for a Class of Jump Densities", Markov Proc. Rel. Fields, v-26, 57 (2020).

(286) N. Smith, D. S. Dean, P. Le Doussal, S. N. Majumdar, and G. Schehr, "Non-interacting trapped fermions in double-well potentials: Inverted-parabola kernel", Phys. Rev. A, v-101, 053602 (2020).

(287) F. Mori, S. N. Majumdar, and G. Schehr, "Distribution of the time between maximum and minimum of random walks", Phys. Rev. E, v-101, 052111 (2020).

(288) A. K. Hartmann, S. N. Majumdar, H. Schawe, and G. Schehr, "The convex hull of the run-and-tumble particle in a plane", J. Stat. Mech. 053401 (2020).

(289) T. Banerjee, S. N. Majumdar, A. Rosso, and G. Schehr, "Current fluctuations in non-interacting run-and-tumble pa rticles in one-dimension", Phys. Rev. E v-101, 052101 (2020).

(290) P. Le Doussal, S. N. Majumdar, and G. Schehr, "Velocity and diffusion constant of an active particle in a one dimensional force field ", Europhys. Lett. v-130, 40002 (2020)

(291) M. Magoni, S. N. Majumdar, and G. Schehr, "Ising model with stochastic resetting", Phys. Rev. Research, v-2, 033182 (R) (2020).

(292) B. Besga, A. Bovon, A Petrosyan, S. N. Majumdar, S. Ciliberto, "Optimal mean first-passage time for a Brownian searcher subjected to resetting: experimental and theoretical results", Phys. Rev. Research, v-2, 032029 (R) (2020).

(293) S. N. Majumdar and B. Meerson, "Toward the full short-time statistics of an active Brownian particle on the plane", Phys. Rev. E v-102, 022113 (2020).

(294) P. Mounaix, S. N. Majumdar and G. Schehr, "Statistics of the number of records for random walks and Lévy flights on a 1D lattice", J. Phys. A: Math. Theo. v-53, 415003 (2020).

(295) G. Marcado-Vasquez, D Boyer, S. N. Majumdar and G. Schehr, "Intermittent resetting potentials", J. Stat. Mech. 113203 (2020).

(296) S. Sabhapandit and S. N. Majumdar, "Freezing Transition in the Barrier Crossing Rate of a Diffusing Particle", **Phys. Rev. Lett.** v-125, 200601 (2020).

(297) F. Mori, P. Le Doussal, S. N. Majumdar, and G. Schehr, "Universal properties of a run-and-tumble particle in arbitrary dimension", Phys. Rev. E v-102, 042133 (2020).

(298) D. S. Dean, S. N. Majumdar, and H. Schawe, "Position distribution in a generalized run-and-tumble process", Phys. Rev. E v-103, 012130 (2021).

(299) G. Gradenigo, S. Iubini, R. Livi and S. N. Majumdar, "Localization transition in the Discrete Non-Linear Schrödinger Equation: ensembles inequivalence and negative temperatures", J. Stat. Mech. 023201 (2021).

(300) D. S. Dean, P. Le Doussal, S. N. Majumdar, G. Schehr, N. Smith, "Kernels for non interacting fermions via a Green's function approach with applications to step potentials", J. Phys. A: Math. Theor. v-54, 084001 (2021).

(301) S. N. Majumdar, F. Mori, H. Schawe, G. Schehr, "Mean perimeter and area of the convex hull of a planar Brownian motion in the presence of resetting", Phys. Rev. E v-103, 022135 (2021).

(302) N. R. Smith, P. Le Doussal, S. N. Majumdar, G. Schehr, "Counting statistics for non-interacting fermions in a d-dimensional potential", Phys. Rev. E v-103, L030105 (2021).

(303) M. Kulkarni, S. N. Majumdar, G. Schehr, "Multilayered density profile for noninteracting fermions in a rotating two-dimensional trap", Phys. Rev. A v-103, 033321 (2021).

(304) D. S. Dean, P. Le Doussal, S. N. Majumdar, G. Schehr, "Impurities in systems of noninteracting trapped fermions", SciPost Phys. v-10, 082 (2021).

(305) G. Gradenigo, S. Iubini, R. Livi and S. N. Majumdar, "Condensation transition and ensemble inequivalence in the discrete nonlinear Schrodinger equation", Eur. J. Phys. E, v-44, 29 (2021).

(306) B. De Bruyn, S. N. Majumdar, G. Schehr, "Survival probability of a run-and-tumble particle in the presence of a drift", J. Stat. Mech. 043211 (2021).

(307) J. Grela, S. N. Majumdar, G. Schehr, "Non-intersecting Brownian bridges in the flat-to-flat geometry", J. Stat. Phys. v-183, 1 (2021).

(308) F. Mori, P. Le Doussal, S. N. Majumdar, and G. Schehr, "Condensation transition in the late-time position of a Run-and-Tumble particle", Phys. Rev. E v-103, 062134 (2021).

(309) S. N. Majumdar, P. Mounaix, and G. Schehr, "Universal record statistics for random walks and Lévy flights with a nonzero staying probability", J. Phys. A: Math. Theor. v-54, 315002 (2021).

(310) B. Besga, F. Faisant, A. Petrosyan, S. Ciliberto, and S. N. Majumdar, "Dynamical phase transition in the first-passage probability of a Brownian motion", Phys. Rev. E v-104, L012102 (2021).

(311) B. De Bruyne, D.S. Dean, P. Le Doussal, S. N. Majumdar, G. Schehr, "Wigner function for noninteracting fermions in hard-wall potentials", Phys. Rev. A, v-104, 013314 (2021).

(312) B. De Bruyne, S. N. Majumdar, G. Schehr, "Generating discrete-time constrained random walks and Lévy flights", Phys. Rev. E v-104, 024117 (2021).

(313) B. De Bruyne, S. N. Majumdar, G. Schehr, "Expected maximum of bridge random walks and Lévy flights", J. Stat. Mech. 083215 (2021).

(314) B. De Bruyne, S. N. Majumdar, G. Schehr, "Generating constrained run-and-tumble trajectories", J. Phys. A: Math. Theor. v-54 385004 (2021).

(315) A. Flack, S. N. Majumdar, G. Schehr, "Truncated linear statistics in the one dimensional one-component plasma ", J. Phys. A: Math. Theor. v-54, 435002 (2021).

(316) F. Mori, G. Gradenigo, and S. N. Majumdar,, "First-order condensation transition in the position distribution of a run-and-tumble particle in one dimension", J. Stat. Mech. 103208 (2021).

(317) P. Le Doussal, S. N. Majumdar, G. Schehr, "Stationary nonequilibrium bound state of a pair of run and tumble particles", Phys. Rev. E v-104, 044103 (2021).

(318) F. Mori, S. N. Majumdar, G. Schehr, "Distribution of the time of the maximum for stationary processes", Europhys. Lett. v-135, 30003 (2021).

(319) J. Kethepalli, M. Kulkarni, A. Kundu, S. N. Majumdar, D. Mukamel, G. Schehr, "Harmonically confined long-ranged interacting gas in the presence of a hard wall" J. Stat. Mech. 103209 (2021).

(320) P. Le Doussal, S. N. Majumdar, and G. Schehr, "Stationary nonequilibrium bound state of a pair of run and tumble particles", Phys. Rev. E, v-104, 044103 (2021).

(321) A. Flack, S. N. Majumdar, and G. Schehr, "Truncated linear statistics in the one dimensional one-component plasma;, J. Phys. A: Math. Theor. v-54, 435002 (2021).

(322) A. D. Chepelianskii, S. N. Majumdar, H. Schawe, and E. Trizac, "One-dimensional Monte Carlo dynamics at zero temperature', J. Phys. A: Math. Theor. v-54, 485001 (2021).

Conference Proceedings:

(1) K. Damle, S.N. Majumdar and S. Sachdev, " Far from Equilibrium Dynamics of the Bose Gas ", Pune Workshop (CMT-20) Proceedings"; Vol-12, Condensed Matter Theories; Nova Science Publishing. Ed: J. W. Clark (1997).

(2) A. Nagar, M. Barma and S.N. Majumdar, " Clustering of Advected Passive Sliders on a Fluctuating Surface", Proceedings of National Conference on Nonlinear Systems and Devices, pages 85-88,(2003).

(3) S.N. Majumdar, D.S. Dean and P.L. Krapivsky " Understanding Search Trees via Statistical Physics", in *Proceedings of the STATPHYS 22* (Bangalore, India, 2004), Pramana-J. Phys. **64**, 1175-1189 (2005) (also available at http://xxx.arXiv.org/cond-mat/0410498);

(4) P. Vivo, S.N. Majumdar and O. Bohigas, " Large Deviations and Random Matrices", ACTA PHYSICA POLONICA B special issue (Proceedings of the Krakow Conference on Random Matrices), v-38, 4139 (2007).

Invited Reviews:

(1) S.N. Majumdar, "Persistence in Nonequilibrium Systems", Current Science, v-77, 370 (1999); cond-mat/9907407. [**citations: 308 (GS)**]

(2) S.N. Majumdar, "Brownian Functionals in Physics and Computer Science", a contribution to the special issue "The Legacy of Albert Einstein" of Current Science (2005); Current Science, v-89, 2076 (2005). It has also appeared as a chapter in the book titled "The Legacy of Albert Einstein: A Collection of Essays in Celebration of the Year of Physics" (World Scientific, Singapore, 2007) edited by S.R. Wadia. This article is also available at http://xxx.arXiv.org/cond-mat/0510064. [**citations: 241 (GS)**]

(3) S.N. Majumdar, " Random Matrices, the Ulam Problem, Directed Polymers & Growth Models, and Sequence Matching", cond-mat/0701193, Les Houches lecture notes for the summer school on "Complex Systems" (Les Houches, July 2006, organized by M. Mèzard and J-P. Bouchaud).

(4) S.N. Majumdar, " Real-space Condensation in Stochastic Mass Transport Models", arXiv: 0904:4097, Les Houches lecture notes for the summer school on "Exact Methods in Low-dimensional Statistical Physics and Quantum Computing" (Les Houches, July 2008), ed. by J. Jacobsen, S. Ouvry, V. Pasquier, D. Serban and L.F. Cugliandolo and published by the Oxford University Press (2010).

(5) S.N. Majumdar, " Extreme Eigenvalues of Wishart Matrices: Application to Entangled Bipartite System", arXiv:1005.4515, a chapter in the book " Handbook of Random Matrix Theory" (ed. by G. Akemann, J. Baik and P. Di Francesco and forwarded by F.J. Dyson), published by Oxford University Press (2011).

(6) S.N. Majumdar, " Universal First-passage Properties of Discrete-time Random Walks and Levy Flights on a Line: Statistics of the Global Maximum and Records", arXiv: 0912:2586, Lecture notes for the summer school "Fundamental Problems in Statistical Physics: XII" held at Leuven, Belgium (2009) and published in Physica A, v-389, 4299 (2010).

(7) A. J. Bray, S. N. Majumdar, and G. Schehr, " Persistence and first-passage properties in nonequilibrium systems", Adv. in Phys. v-62, 225-361 (2013). [**citations: 333 (GS)**]

(8) G. Schehr and S. N. Majumdar, "Exact record and order statistics of random walks via first-passage ideas", arXiv: 1305.0639, to appear in the special volume "First-Passage Phenomena and Their Applications", Eds. R. Metzler, G. Oshanin, S. Redner. World Scientific (2013).

Invited Talks at International Conferences (1996-)

1. "Dynamics of Nonequilibrium Systems", Trieste, **Italy**, 1996.

2. "Condensed Matter Theory-20", Pune, **India**, 1997.

3. "Statistical Physics of Frustrated Systems", Trieste, **Italy**, 1997.

4. "Workshop on Nonlinear Dynamics", Los Alamos, **USA**, 1998.

5. "Temporal-Spatial Patterns", Enschede, **The Netherlands**, 1998.

6. "Recent Developements in Theoretical Physics", Bombay, **India**, 1999.

7. "Workshop on Nonequilibrium Systems", satellite Statphys meeting, Calcutta, **India**, 1999.

8. "Dynamics of Nonequilibrium Systems", Trieste, **Italy**, 1999.

9. "Nonequilibrium Dynamics", Porto, **Portugal**, 1999.

10. "Recent Trends in Nonequilibrium Statistical Physics", Bangalore, **India**, 1999.

11. "Fifth Claude Itzykson Meeting on Nonequilibrium Dynamics", Saclay, **France**, 2000.

12. "India and Abroad: Perspectives in Condensed Matter Physics", S.N. Bose Center for Natural Sciences, Calcutta, **India**, 2001.

13. "Statphys 21 Satellite Meeting: VII Latin American Workshop on nonlinear Phenomena", Cocoyoc, Morelos, **Mexico**, July, 2001.

14. "Statphys-Kolkata IV", IACS (Indian Association for the Cultivation of Science) and S.N. Bose Center for Natural Sciences, Calcutta, **India**, 2002.

15. "Journées Sur les Graphes en Physique", IHP, Paris, **France**, June, 2002.

16. "50 Years of Theoretical Physics", Indian Association for the Cultivation of Science, Calcutta, **India**, January, 2003.

17. "Geometry and Statistics of Random Growth", Paris, **France**, Jan-April, 2003.

18. "Arbres Aléatoires et Algorithmes", Versailles, **France**, March, 2003.

19. "Workshop on Non-Equilibrium Systems", Center for Nonlinear Studies (CNLS), Los Alamos National Laboratory, **USA**, June, 2003.

20. "Non-Equilibrium Statistical Physics in Low Dimensions and Reaction Diffusion Systems", Max Planck Institute at Dresden, **Germany**, September 2003.

21. "SERC school on Statistical Physics", Tata Institute, Bombay, **India**, February 2004.

22. "Optimization Algorithms and Disordered Quantum Systems", Institute Henri Poincare, Paris, **France**, June 2004.

23. "Workshop on Nonequilibrium Processes", Korea Institute of Advanced Studies (KIAS), Seoul, **South Korea**, June 2004.

24. "Statphys 22", Indian Institute of Science (IISC), Bangalore, **India**, July 2004.

25. "Workshop on the Principles of the Dynamics of Non-Equilibrium Systems", Isaac Newton Institute, Cambridge University, Cambridge, **UK**, March 2006.

26. "First-Passage and Extreme Value Problems in Random Processes", Isaac Newton Institute, Cambridge University, Cambridge, **UK**, June 2006.

27. "Les Houches Summer School on Complex Systems", Les Houches, **FRANCE**, July 2006.

28. "International Conference on the Interdisciplinary Advances in Statistical Physics", Beijing, **China**, September 2006.

29. "Workshop on Random Curves, Surfaces, and Transport", Institute of Pure and Applied Mathematics (IPAM), UCLA, **USA**, April 2007.

30. "International Workshop on Random Matrix Theory: From Fundamental Physics to Applications", Krakow, **Poland**, May 2007.

31. "Statistical Physics and Low Dimensional Systems", Nancy, **France**, May 2007.

32. "Summer school on Physics and Computer Science", Bremen, **Germany**, June 2007.

33. "International Conference on the Statistical Mechanics of Distributed Information Systems", Mariehamn, **Finland**, July, 2007.

34. "Physique Statistique et Traitement du Signal et de l'Image", GDR Phenix & ISIS, ENS Lyon, **France**, November, 2007.

35. "International Conference on Nonequilibrium Phenomena in Condensed Matter", New Delhi **India**, February, 2008.

36. "Statistical-mechanics and Quantum-Field-Theory Methods in Combinatorial Enumeration", Isaac Newton Institute, Cambridge **UK**, April, 2008.

37. "Physics of Distributed Information Systems", Nordita, Stockholm **Sweden**, May, 2008.

38. “International Conference on Random Matrices (ICRAM)”, Sousse **Tunisia**, June, 2008.

39. “The Beg Rohu Summer School on Manifolds in Random Media, Random Matrices and Extreme Value Statistics”, Beg Rohu **France**, June, 2008.

40. “NSPCS2008: Nonequilibrium Statistical Physics of Complex Systems”, Korea Institute for Advanced Studies (KIAS), Seoul **South Korea**, July, 2008.

41. “Les Houches Summer School on Exact Methods in Low-dimensional Statistical Physics and Quantum Computing”, Les Houches, **France**, July, 2008.

42. “IV Brunel Workshop on Random Matrix Theory”, Brunel, **UK**, December, 2008.

43. “New paths in Random Walks–International Conference”, CIC (Curenavaca), **Mexico**, January, 2009.

44. “Workshop on Statistical Mechanics BASM-II”, Bangalore, **India**, March, 2009.

45. “Steady-states, Fluctuations and Dynamics of Nonequilibrium Systems”, Technion and Weizmann Institute, **Israel**, June, 2009.

46. “Workshop on Random Matrices and their Applications in Physics and Number Theory”, IHP (Paris), **France**, June, 2009.

47. “Nonequilibrium Physics from Classical to Quantum Low Dimensional Systems”, ICTP (Trieste), **Italy**, July, 2009.

48. Lectures at the international summer school “ Fundamental Problems in Statistical Physics XII”, La Foresta, Leuven, **Belgium**, September, 2009.

49. “EPSRC Symposium Workshop on Non-equilibrium dynamics of spatially extended interacting particle systems (NEQ)”, University of Warwick, **UK**, January, 2010.

50. ‘Distinguished Colloquuium’ at the “International Workshop on Non-equilibrium Statistical Physics” (NESP), Indian Institute of Technology, Kanpur, **India**, February, 2010.

51. Invited talk at the 4-th KIAS conference on “Nonequilibrium statistical physics of complex systems”, Korea Institute of Advanced Studies (KIAS), **South Korea**, July, 2010.

52. Invited talk at the 23-rd Marian Smoluchowski Symposium on Statistical Physics: “Random Matrices, Statistical Physics and Information Theory”, Krakow, **Poland**, September, 2010.

53. Second M.L. Mehta memorial lecture at Tata Institute, Bombay, **India**, January, 2011.

54. Invited speaker at ‘Rencontre de Physique Statistique’ held at ESPCI, Paris, **France**, January, 2011.

55. Weston Colloquiuum at the Weizmann Institute of Science, Rehovot, **Israel**, April, 2011.

56. Invited lectures at the Les Houches summer school on "Vicious Walkers and Random Matrices", Les Houches, **France**, May, 2011.

57. **Plenary** speaker at the 7-th 'Extreme Value Analysis' (EVA 2011) held at Universite' de Lyon, **France**, June, 2011.

58. Invited speaker at "Extreme Value Statistics in mathematics, Physics and Beyond" held at Lorentz Center, Leiden, **Netherlands**, July, 2011.

59. Joint Max-Planck and LAFNES-11 Colloquiuum, as part of the international conference "Large Fluctuations in Non-equilibrium Systems" held at Max Planck Institute for the Physics of Complex Systems, Dresden, **Germany**, July, 2011.

60. Invited talk at the international workshop on "Weak Chaos, Infinite Ergodic Theory, and Anomalous Dynamics" held at Max Planck Institute for the Physics of Complex Systems, Dresden, **Germany**, July-August, 2011.

61. Invited talk at the international conference on " Discretization in mathematics and in Theoretical Physics", Strasbourg, **France**, September, 2011.

62. Invited talk at the international conference on "Random Processes, Conformal Field Theory and Integrable Systems", Moscow, **Russia**, September, 2011.

63. Invited talk at the international conference "GranMa 2011" (Grand Matrices Aleatoires), held at Institut Henri Poincare, Paris, **France**, October, 2011.

64. Invited talk at the international conference "Open Quantum Systems and Quantum Information Theory", Université Paul Sabatier, Toulouse, **France**, November, 2011.

65. Invited talk at the "106th Statistical Mechanics Conference" held at Rutgers University, **USA**, December, 2011.

66. Subhramanyam Chandrasekhar lectures as part of the international conference "Random Matrix theory and applications", held at International Center for Theoretical Sciences (ICTS), Bangalore, **India**, January, 2012.

67. Invited speaker at the international conference "Search 2012: Search and Stochastic Phenomena in Complex Physical and Biological Systems" held at IFISC, Palma de Mallorca, **Spain**, May, 2012.

68. Invited speaker at the international conference "Nonequilibrium Statistical Physics of Complex Systems" (the 5-th KIAS conference on Statistical Physics) held at Korea Insititute of Advanced Studies (KIAS), Seoul, **South Korea**, July, 2012.

69. Invited speaker at the international workshop "Autour des probabilites de persistance" held at the department of Mathematics at the University of Lille, **France**, September, 2012.

70. **Plenary** speaker at ICNP1 (First International Conference on Numerical Physics), held at the University of Sciences and Technology, Oran, **Algeria**, October, 2012.

71. Invited speaker at the international conference "Statistical Mechanics in Low Dimensions" (in honor of Henk HILHORST), held at LPT, Université Paris-Sud (Orsay), **France**, December, 2012.

72. Invited speaker at the VIII Brunel-Bielefeld workshop on "Random matrix Theory and Applications", held at Brunel University (London), **UK**, December, 2012.

73. Invited speaker at the "Workshop on quantum graphs and applications", held at the University of Bristol (Bristol), **UK**, December, 2012.

74. Invited speaker at the international conference "Diversity and Complexity: Realm of Today's Statistical Physics", held at the Saha Institute of Nuclear Physics (Kolkata), **India**, January, 2013.

75. Invited guest lectures on 'random walks' for the Master's course on 'Complex Systems' at King's College (London), **UK**, March, 2013.

76. Keynote speaker at the "38th Conference of the Middle European Cooperation in Statistical Physics-MECO38" held at ICTP (Trieste), **Italy**, March, 2013.

77. Invited lectures on 'models of nonequilibrium physics' at the 4-th RRI school on statistical physics held at RRI (Raman Research Institute) (Bangalore), **India**, April, 2013.

78. Invited lectures on 'Random matrix Theory and its applications' at the Beg-Rohu summer school on 'Disordered Systems' (Beg-Rohu), **France**, June, 2013.

79. Invited speaker at the conference 'Rencontre Nicoise de Physique Theorique et de Probabilite", held at the University of Nice, **France**, June, 2013.

80. **Plenary** speaker at STATPHYS25 held at Seoul, **South Korea**, July, 2013.

81. Invited lectures (4 lectures) on '3rd order phase transitions in random matrix madels' at the Bielefeld summer school on ' Randomness in Physics and Mathematics: From Quantum Chaos to Free Probability', held at the University of Beilefeld, **Germany**, August, 2013.

82. Invited speaker at the EPSRC symposium/workshop on "Models from Statistical Mechanics in Applied Sciences', held at the University of Warwick, **UK**, September, 2013.

83. Invited speaker at the international workshop, "Small systems far from equilibrium: order, correlations, and fluctuations", held at the Max-Planck-Institute for complex systems, Dresden, **Germany**, October, 2013.

84. Invited speaker at the international workshop, "Animal movement in confined space: from space use patterns to epidemic spread", held at the University of Bristol, **UK**, December, 2013.

85. Invited lectures at the "RRI & ICTS summer school in statistical physics", held at the Raman Research Institute, Bangalore **India**, April, 2014.

86. Invited lectures at the international workshop "Advances in Nonequilibrium Statistical Mechanics", held at the Galileo Galilei Institute (GGI), Florence, **Italy**, May-June, 2014.

87. Invited lecture series on random matrix theory at the international summer school "Spectral analysis for random matrices and applications", held at the Universidad de Los Andes, Bogota, **Colombia**, May, 2014.

88. Invited lectures at the international conference "Random Walks in Random Media", held at CIRM, Marseille, **France**, June, 2014.

89. Invited speaker at the international conference "Viewpoints on Emergent Phenomena in Non-equilibrium Systems", held at the Higgs Centre for Theoretical Physics, University of Edinburgh, **UK**, June, 2014.

90. Invited speaker at the international conference "Random Matrix Theory: Foundations and Applications", held at the Jagiellonian University, Krakow, **Poland**, July, 2014.

91. Invited speaker at the international conference "6-th Kias conference on "Nonequilibrium Statistical Physics of Complex Systems" held at the Korea Institute of Advanced Studies (KIAS), Seoul, **South Korea**, July, 2014.

92. Invited speaker at the international workshop "Persistence probabilities and related fields", held at the Technical University, Darmstadt, **Germany**, July, 2014.

93. Invited speaker at the international school on "Non-linear Dynamics, Dynamical Transitions and Instabilities in Classical and Quantum Systems", held at ICTP, Trieste, **Italy**, July, 2014.

94. Invited speaker at the international workshop on " Large Deviations in Statistical Physics", held at the University of Stellenbosch, Stellenbosh, **South Africa**, November, 2014.

95. Invited speaker at the international workshop on " Applications of Random Matrix Theory and Statistical Physics in Communications and Networks", held at the Institut Henri Poincare, Paris, **France**, November, 2014.

96. Invited speaker at the international workshop "Statistical Mechanics Day VII", held at the Weizmann Institute, **Israel**, November, 2014.

97. Invited speaker at the international workshop "Frontiers in Condensed Matter Physics", held at the Israel Academy of Sciences and Humanities, **Israel**, December, 2014.

98. Invited speaker at the international conference "Second ICTS Indian Statistical Physics Community Meeting 2015", IISC (Bangalore), **India**, February, 2015.

99. Invited speaker at the DPG (Deutsche Physikalische Gesellschaft e.V.) spring meeting, Berlin, **Germany**, March, 2015.

100. Invited speaker at the international workshop "Stochastic processes in random media",

held at the National University of Singapore, **Singapore**, May, 2015.

101. Invited speaker at the summer school "Spring College on the Physics of Complex Systems" held at ICTP, Triste, **Italy**, May-June, 2015.

102. Invited speaker at the international conference "Science at ICTS", held at the International Center for Theoretical Sciences (ICTS), Bangalore, **India**, June, 2015.

103. Invited speaker at the international workshop "The dynamics of foraging", Max-Planck-Institute for complex systems, Dresden, **Germany**, October, 2015.

104. Invited speaker at the international workshop "NESP2015: workshop on non-equilibrium statistical physics", held at the International Center for Theoretical Sciences (ICTS), Bangalore, **India**, October-November, 2015.

105. Invited speaker at the international workshop "XI Brunel-Bielefeld workshop on random matrices", held at ZiF - Center for Interdisciplinary Research, Bielefeld University, Bielefeld, **Germany**, December, 2015.

106. Invited speaker at the international conference "17th. Annual U.C. Berkeley Statistical Mechanics Meeting", held at U.C. Berkeley college of chemistry, Berkeley, California, **USA**, January, 2016.

107. Invited speaker at the international workshop "New approaches to non-equilibrium and random systems: KPZ integrability, universality, applications and experiments", held at KITP, Univ. of California at Santa Barbara, **USA**, January, 2016.

108. Invited speaker at the conference "ISPC-3", held at ICTS, Bangalore, **India**, February, 2016.

109. Invited speaker at the conference "Optimal and random point configurations", held at Institut Henri Poincare (IHP), Paris, **France**, June, 2016.

110. Invited speaker at the conference "Nonequilibrium Statistical Physics of Complex Systems– 7-th KIAS meeting", held at Korea Institute of Advanced Studies (KIAS), Seoul, **South Korea**, July, 2016.

111. Invited speaker at the conference "Statistical topology of random manifolds: theory and applications", held at ICTP, Trieste, **Italy**, July, 2016.

112. Invited speaker at the conference "Entanglement and Non-equilibrium physics of pure and disordered systems", held at ICTP, Trieste, **Italy**, July, 2016.

113. Invited speaker at the conference "Random geometry and Physics", held at IHP, Paris, **France**, October, 2016.

114. Invited speaker at the conference "Statphys Kolkata IX", held at Saha Institute of Nuclear Physics (SINP), Kolkata, **India**, December, 2016.

115. Invited speaker at the conference "String theory: past and present", held at the International Centre for Theoretical Sciences (ICTS), Bangalore, **India**, January, 2017.

116. Invited speaker (and moderator) for the session "Extreme Value Statistics in stochastic processes", as part of the international conference "Inhomogeneous Random Systems (IRS 2017)", held at IHP, Paris, **France**, January, 2017.

117. Invited speaker at the "Spring School on Probability in Mathematics and Physics", held at TU Darmstadt, **Germany**, March, 2017.

118. Invited minicourse on "Top eigenvalue of a random matrix: Tracy-Widom distribution and 3rd order phase transition", held at the Interdisciplinary Institute (Poncelet lab at Moscow), **Russia**, May, 2017.

119. Invited speaker at the conference "From Field Theory to Non-Equilibrium", held at the University of Nice-Sophia Antipolis, **France**, June, 2017.

120. Invited speaker at the international workshop on 'Random Matrices', held at the Park City Mathematical Institute (PCMI, Utah), **USA**, June, 2017.

121. Invited speaker at the international workshop on "Climate fluctuations and Non-equilibrium Statistical Mechanics: An Interdisciplinary Dialogue", held at the Max-Planck-Institute for Complex Systems (Dresden), **Germany**, July, 2017.

122. Invited speaker at the international conference "Out of equilibrium dynamics in soft and condensed matter", held at the International Institute of Physics (IIP) (Natal), **Brazil**, August, 2017.

123. Invited speaker at the international conference "The statistical physics cornucopia" (in honour of the 60'th birthday of Marc Mezard), held at the Theatre de Reine Blanche (Paris), **France**, September, 2017.

124. Invited speaker at the international workshop "Large Deviation Theory in Statistical Physics: Recent Advances and Future Challenges", held at ICTS (Bangalore), **India**, September, 2017.

125. Invited speaker at the international conference "Probabilistic techniques and Quantum Information Theory", held at IHP, Paris, **France**, October, 2017.

126. Invited speaker at the international workshop " Correlations, Fluctuations and anomalous transport in systems far from equilibrium", held at SRITP, Weizmann Institute of Science, **Israel**, December, 2017.

127. Invited speaker at the international summer school "Statistical Field Theories (2018)" (10 lectures (1h each) on Random Matrix Theory) held at the Galileo Galilei Institute, Florence, **Italy**, February, 2018.

128. Invited speaker at the international conference "Frontiers of Statistical Physics", held at the Indian Statistical Institute, Calcutta, **India**, February, 2018.

129. Invited speaker at the international conference "Emergent phenomena in classical and qunatum systems" (125 years of S.N. Bose), held at the S. N. Bose Centre for Basic Sciences, Calcutta, **India**, February, 2018.

130. Invited at the international workshop "Point Configurations in Geometry, Physics and Computer Science", Semester program at ICERM, Brown University, Providence, **USA**, April, 2018.

131. Invited speaker at the international conference MECO43 (Middle European Cooperation in Statistical Physics), held at Krakow, **Poland**, May, 2018.

132. Invited speaker at the international workshop "Integrable Probability", held at MIT (Boston), **USA**, June, 2018.

133. Invited speaker at the international conference "Randomness and Symmetry", held at the University College of Dublin (UCD), **Ireland**, June, 2018.

134. Invited speaker at the international conference "Random Matrix Theory meets Theoretical Physics", held at the Universite' Paris-Descartes, Paris, **France**, June, 2018.

135. Invited speaker at the conference "Nonequilibrium Statistical Physics of Complex Systems– 8-th KIAS meeting", held at Korea Institute of Advanced Studies (KIAS), Seoul, **South Korea**, July, 2018.

136. Invited speaker at the conference "Probabilistic methods in statistical physics for extreme statistics and rare events", held at Scuole Normale Superiore, Pisa, **Italy**, September, 2018.

137. Invited speaker at the conference "Modern aspects of Quantum Physics", held at the Ruder Boskovic Institute, Zagreb, **Croatia**, October, 2018.

138. Invited speaker at the conference " XIV-th BrunelBielefeld Workshop on Random Matrix Theory and Applications", held at Brunel University, London, **UK**, December, 2018.

139. Invited **Plenary** speaker at the conference " New directions in theoretical physics III", held at the Higgs Center, University of Edinburgh, **UK**, January, 2019.

140. Invited speaker at the international workshop "Universality in random structures: Interfaces, Matrices, Sandpiles", held at ICTS (Bangalore), **India**, January, 2019.

141. Invited speaker at the workshop "Statistical Physics and Nonlinear Dynamics", organized by the Queen Mary University (London) and held at the British Council (Paris), **France**, April, 2019.

142. Invited speaker at the international conference " Random Matrices and Random Graphs", held at CIRM (Marseille), **France**, April, 2019.

143. Invited speaker at the international workshop " New directions in Quantum information", held at Nordita (Stockholm), **Sweden**, April, 2019.

144. Invited talk (as the recipient of the EPS prize for Statistical and Nonlinear Physics (EPS-SNPD, 2019)) at the international conference "Statistical Physics of Complex Systems" held at Nordita (Stockholm), **Sweden**, May, 2019.

145. Invited speaker at the international ICTS-RRI summer school on Statistical Physics, held at ICTS (Bangalore), **India**, June 2019.

146. Invited speaker at the international conference "Statistical Physics Meets Movement Ecology", held at Bristol University (Bristol), **UK**, July, 2019.

147. Invited speaker at the international conference "32-nd Marian Smoluchowsky Symposium on Statistical Physics", held at Jagiellonian University (Krakow), **Poland**, September, 2019.

148. Invited speaker at the international conference "Fluctuations in Nonequilibrium Systems: Theory and applications " held at ICTS (Bangalore), **India**, March, 2020.

149. Invited speaker at the international workshop "Stochastic Processes under Constraints", held at Oberwolfach (partly virtual)), **Germany**, September, 2020.

150. Invited speaker at the APS march meeting (virtual) in the 'Kadanoff Prize Session', **USA**, March, 2021.

151. Invited speaker at the international workshop (virtual) "Random Matrix Theory and Networks", Max-Planck Institute, Dresden, **Germany**, June, 2021.

152. Invited speaker at the international conference (virtual) "Lattice Paths, Combinatorics and Interactions", CIRM, Marseille, **France**, June, 2021.

153. Invited speaker at the international conference "Mathematical harmony and the quantum world" (conference honouring the 60th birthday of D. Bernard), ENS, Paris, **France**, October, 2021.