



Curriculum vitae of **Dr. Asim Ghosh**

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Personal Details

Name: Asim Ghosh

Designation: Assistant Professor-II

Official address: Department of Physics, Raghunathpur College
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Degree

- Master of Science (M. Sc.) in Physics, University of Burdwan, India (2006).
- Post M. Sc., Saha Institute of Nuclear Physics, India (2008).
- Ph. D. (Theoretical Physics), University of Calcutta, India.
- Post Doctoral Fellow (Theoretical Physics), University of Aalto, Finland (>2yrs).

Previous Positions

Junior Research Fellow, Saha Institute of Nuclear Physics, India (2007-2009).

Senior Research Fellow, Saha Institute of Nuclear Physics, India (2009-2014).

Research Associate, Saha Institute of Nuclear Physics, India (2014-2015).

Post Doctoral Fellow (Theoretical Physics), University of Aalto, Finland (2015-2017).

Research Experience and Skills

My research has focused on statistical physics and complex systems, including equilibrium and non-equilibrium phase transitions, econophysics, socio-physics, game theory etc.

Programming skills:

C, C++, Python, R and Mathematica

Awards

- Awarded Senior Research Fellowship by SINP, India (2009-till date)
- Awarded Junior Research Fellowship by SINP, India (2007-2009)
- Qualified in National Eligibility Test (NET) from CSIR-2007
- Qualified in JEST-2007 (all India rank- 15)
- Qualified in GATE-2007 (all India rank- 60)

Publications

Research papers

- *Statistics of the Kolkata Paise Restaurant problem*, **A. Ghosh**, A. Chatterjee, M. Mitra, B. K. Chakrabarti, New J. Phys. **12**, 075033 (2010).

- *Threshold-induced phase transition in kinetic exchange models*, **A. Ghosh**, U. Basu, A. Chakraborti, B. K. Chakrabarti, Phys. Rev. E **83**, 061130 (2011).
- *Phase transitions in crowd dynamics of resource allocation*, **A. Ghosh**, D. De Martino, A. Chatterjee, M. Marsili, B. K. Chakrabarti, Phys. Rev. E **85**, 021116 (2012).
- *Continuous transition of social efficiencies in the stochastic-strategy minority game*, S. Biswas, **A. Ghosh**, A. Chatterjee, T. Naskar, B. K. Chakrabarti, Phys. Rev. E **85**, 031104 (2012).
- *Response of Two-dimensional Kinetic Ising Model under Stochastic Field*, **A. Ghosh**, B. K. Chakrabarti, J. Stat. Mech. **P11015** (2013).
- *Inequality in societies, academic institutions and science journals: Gini and k-indices*, **A. Ghosh**, N. Chattopadhyay, B. K. Chakrabarti, Physica A **410**, 30 (2014).
- *City growth as a resource utilization problem*, **A. Ghosh**, A. Chatterjee, A. S. Chakrabarti, B. K. Chakrabarti, Phys. Rev. E **90**, 042815 (2014).
- Inoue, Jun-ichi, Asim Ghosh, Arnab Chatterjee, and Bikas K. Chakrabarti. "Measuring social inequality with quantitative methodology: analytical estimates and empirical data analysis by Gini and k indices." Physica A: Statistical Mechanics and its Applications 429 (2015): 184-204..
- Chatterjee, Arnab, Asim Ghosh, and Bikas K. Chakrabarti. "Universality of citation distributions for academic institutions and journals." PloS one 11, no. 1 (2016): e0146762.
- Chatterjee, Arnab, Asim Ghosh, Jun-ichi Inoue, and Bikas K. Chakrabarti. "Social inequality: from data to statistical physics modeling." In Journal of Physics: Conference Series, vol. 638, no. 1, p. 012014. IOP Publishing, 2015.
- Chatterjee, Arnab, Anindya S. Chakrabarti, Asim Ghosh, Anirban Chakraborti, and Tushar K. Nandi. "Invariant features of spatial inequality in consumption: The case of India." Physica A: Statistical Mechanics and its Applications 442 (2016): 169-181.
- Bhattacharya, Kunal, Asim Ghosh, Daniel Monsivais, Robin IM Dunbar, and Kimmo Kaski. "Sex differences in social focus across the life cycle in humans." Royal Society open science 3, no. 4 (2016): 160097.
- Ghosh, Asim, Arnab Chatterjee, Jun-ichi Inoue, and Bikas K. Chakrabarti. "Inequality measures in kinetic exchange models of wealth distributions." Physica A: Statistical Mechanics and its Applications 451 (2016): 465-474.
- David-Barrett, Tamas, Janos Kertesz, Anna Rotkirch, Asim Ghosh, Kunal Bhattacharya, Daniel Monsivais, and Kimmo Kaski. "Communication with family and friends across the life course." PloS one 11, no. 11 (2016): e0165687.
- Chatterjee, Arnab, Asim Ghosh, and Bikas K. Chakrabarti. "Socio-economic inequality: Relationship between Gini and Kolkata indices." Physica A: Statistical Mechanics and its Applications 466 (2017): 583-595.
- Ghosh, Asim, and Soumyajyoti Biswas. "Income and wealth distributions from stochastic strategy minority game." Reports in Advances of Physical Sciences 1, no. 01 (2017): 1740003.
- Monsivais, Daniel, Kunal Bhattacharya, Asim Ghosh, Robin IM Dunbar, and Kimmo Kaski. "Seasonal and geographical impact on human resting periods." Scientific reports 7, no. 1 (2017): 10717.

- Monsivais, Daniel, Asim Ghosh, Kunal Bhattacharya, Robin IM Dunbar, and Kimmo Kaski. "Tracking urban human activity from mobile phone calling patterns." *PLoS computational biology* 13, no. 11 (2017): e1005824.
- Bhattacharya, Kunal, Asim Ghosh, Daniel Monsivais, Robin Dunbar, and Kimmo Kaski. "Absence makes the heart grow fonder: social compensation when failure to interact risks weakening a relationship." *EPJ Data Science* 6, no. 1 (2017): 1-10.
- Chakrabarti, Anindya S., Arnab Chatterjee, Tushar Nandi, Asim Ghosh, and Anirban Chakraborti. "Quantifying invariant features of within-group inequality in consumption across groups." *Journal of Economic Interaction and Coordination* 13 (2018): 469-490.
- Bhattacharya, Kunal, Venla Berg, Asim Ghosh, Daniel Monsivais, János Kertész, Kimmo Kaski, and Anna Rotkirch. "Network of families in a contemporary population: regional and cultural assortativity." *EPJ Data Science* 7, no. 1 (2018): 1-17.
- Ghosh, Asim, Venla Berg, Kunal Bhattacharya, Daniel Monsivais, Janos Kertesz, Kimmo Kaski, and Anna Rotkirch. "Migration patterns of parents, children and siblings: Evidence for patrilocality in contemporary Finland." *Population, Space and Place* 25, no. 5 (2019): e2208.
- Ghosh, Asim, Daniel Monsivais, Kunal Bhattacharya, Robin IM Dunbar, and Kimmo Kaski. "Quantifying gender preferences in human social interactions using a large cell-phone dataset." *EPJ Data Science* 8, no. 1 (2019): 9.
- Ghosh, Asim, and Bikas K. Chakrabarti. "Limiting value of the Kolkata index for social inequality and a possible social constant." *Physica A: Statistical Mechanics and its Applications* 573 (2021): 125944.
- Paul, Sanjukta, Sudip Mukherjee, Bijin Joseph, Asim Ghosh, and Bikas K. Chakrabarti. "Kinetic exchange income distribution models with saving propensities: inequality indices and self-organized poverty level." *Philosophical Transactions of the Royal Society A* 380, no. 2224 (2022): 20210163.
- Ghosh, Asim, Soumyajyoti Biswas, and Bikas K. Chakrabarti. "Success of social inequality measures in predicting critical or failure points in some models of physical systems." *Frontiers in Physics* 10 (2022): 990278.
- Ghosh, Asim, Bikas K. Chakrabarti, Dachepalli RS Ram, Manipushpak Mitra, Raju Maiti, Soumyajyoti Biswas, and Suchismita Banerjee. "Scaling behavior of the Hirsch index for failure avalanches, percolation clusters, and paper citations." *Frontiers in Physics* 10 (2022): 1019744.
- Banerjee, Suchismita, Soumyajyoti Biswas, Bikas K. Chakrabarti, Sai Krishna Challagundla, Asim Ghosh, Suhaas Reddy Guntaka, Hanesh Koganti et al. "Evolutionary dynamics of social inequality and coincidence of Gini and Kolkata indices under unrestricted competition." *International Journal of Modern Physics C* 34, no. 04 (2023): 2350048.
- Banerjee, Suchismita, Soumyajyoti Biswas, Bikas K. Chakrabarti, Asim Ghosh, and Manipushpak Mitra. "Sandpile universality in social inequality: Gini and kolkata measures." *Entropy* 25, no. 5 (2023): 735.
- Ghosh, Asim, Suchismita Banerjee, Sanchari Goswami, Manipushpak Mitra, and Bikas K. Chakrabarti. "Kinetic Models of Wealth Distribution with Extreme Inequality: Numerical Study of Their Stability against Random Exchanges." *Entropy* 25, no. 7 (2023): 1105.

- Ghosh, Asim, and Bikas K. Chakrabarti. "Scaling and kinetic exchange like behavior of Hirsch index and total citation distributions: Scopus-CiteScore data analysis." *Physica A: Statistical Mechanics and its Applications* 626 (2023): 129061.
- Ghosh, Asim, and Bikas K. Chakrabarti. "Do Successful Researchers Reach the Self-Organized Critical Point?." *Physics* 6, no. 1 (2023): 46-59.
- Ghosh, Asim, S. S. Manna, and Bikas K. Chakrabarti. "Q-factor: A measure of competition between the topper and the average in percolation and in SOC." arXiv preprint arXiv:2402.01553 (2024).

Books

- Chakrabarti, Bikas K., Arnab Chatterjee, Asim Ghosh, Sudip Mukherjee, and Boaz Tamir. *Econophysics of the Kolkata Restaurant problem and related games*. Springer International Publishing: Berlin/Heidelberg, Germany, 2017.

Reviews

- Chakraborti, Anirban, Yoshi Fujiwara, Asim Ghosh, Jun-ichi Inoue, and Sitabhra Sinha. "Physicists' approaches to a few economic problems." *Econophysics and Data Driven Modelling of Market Dynamics* (2015): 237-286.

Edited Books

- *Econophysics of Systemic Risk & Network Dynamics*, Eds. F. Abergel, B. K. Chakrabarti, A. Chakraborti, **A. Ghosh**, New Economic Windows, Springer-Verlag (Italia), Milan (2012).
- *Econophysics of Agent-based models*, Eds. F. Abergel, H. Aoyama, B.K. Chakrabarti, A. Chakraborti and **A. Ghosh**, Springer-Verlag (Italia), Milan (2014).

Book chapters

- *Kolkata Paise Restaurant problem in some uniform learning strategy limits*, **A. Ghosh**, A. S. Chakrabarti, B. K. Charabarti, in "Econophysics and Economics of Games, Social Choices and Quantitative Techniques", New Economic Windows, Springer-Verlag Italia, Milan (2010).
- *Kolkata Paise Restaurant Problem: An Introduction*, **A. Ghosh**, S. Biswas, A. Chatterjee, A. S. Chakrabarti, T. Naskar, M. Mitra, B. K. Charabarti, in "Econophysics of Systemic Risk & Network Dynamics", New Economic Windows, Springer-Verlag Italia, Milan (2013).
- *Kinetic exchange opinion model: solution in the single parameter map limit*, K. R. Chowdhury, **A. Ghosh**, S. Biswas, B. K. Chakrabarti, in "Econophysics of Agent-based models", New Economic Windows, Springer, Milan (2014).
- *Themes and applications of kinetic exchange models: Redux*, **A. Ghosh**, A. S. Chakrabarti, A. K. Chandra and A. Chakraborti, in "Econophysics of Agent-based models", New Economic Windows, Springer, Milan (2014).
- *Econophysics and Sociophysics: Problems and Prospects*, **A. Ghosh**, A. S. Chakrabarti, in "Econophysics of Agent-based models", New Economic Windows, Springer, Milan (2014).

Citations

1006 citations as of May 13, 2024

<http://scholar.google.co.in/citations?user=n4N53CIAAAAJ>

Miscellaneous

Reviewer of paper submitted to Physica A

Conference Organization

- ECONOPHYS-KOLKATA VI : Econophysics of Systemic Risk and Network Dynamics, 21-25 October 2011, Saha Institute of Nuclear Physics, Kolkata (as a Convenor).
- ECONOPHYS-KOLKATA VII : Econophysics of Systemic Risk & Network Dynamics, 8-12 November 2012, Saha Institute of Nuclear Physics, Kolkata (as a Convenor).
- ECONOPHYS-KOLKATA VIII : Econophysics and data driven modeling of market dynamics, 14-17 March 2014, Saha Institute of Nuclear Physics, Kolkata (as a Convenor).

Seminar, Workshop and Conferences Attended

- The 2nd IMSc Complex Systems School, IMSc, Chennai, India, Jan 4-29, 2010.
- Non Equilibrium Statistical Physics, IIT, Kanpur, India, Jan 30 to Feb 8, 2010.
- STATPHYS-Kolkata VII, Kolkata, India, Nov. 26-30, 2010.
- School and Workshop on Market Micro-structure: Design, Efficiency and Statistical Regularities, Trieste - Italy, 21-25 March 2011.
- Diversity & Complexity: Realm of today's Statistical Physics, Kolkata, India, Jan. 14-17, 2013.