Sasidevan Vijayakumar

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Contact Information

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Personal Information

Born April 10 1985, Kerala. Indian citizen.

Positions

- **Assistant Professor**
  Cochin University of Science and Technology, Kerala India. *July 2017–Present*
- **Post-doctoral fellow**
  Frankfurt Institute for Advanced Studies, Germany. *August 2016– June 2017*
- **Post-doctoral fellow**
  The Institute of Mathematical Sciences, Chennai, India. *November 2013– July 2016*

Education

- **Tata Institute of Fundamental Research** **Mumbai, India.**
  Ph.D., Statistical Physics. *Awarded March 2014*

  Thesis Topic: *Studies in statistical physics: Stochastic strategies in a minority game and continuum percolation of overlapping discs.*
  Advisor: Deepak Dhar, Ph.D
- **Cochin University of Science and Technology** **Kerala, India.**
  M.Sc., Physics *May 2007*

Awards and distinctions

- Distinguished referee, European Physical Journal 2016.

- University Second Rank, M.Sc., Cochin University of Sciences and Technology (2007).
- Gold medal in Physics Talent Search 2005, conducted by the Academy of Physics Teachers, Kerala State, India.

Recent Presentations

- *Revisitng the rationality of Homoeconomicus using co-action*, Nov 14 2017, International workshop on Economy as a Complex System IV, IMSc Chennai.
- *Dilemmas in games and their solution*, May 18 2017, JCB, Jena, Germany.
- *Symmetry warrants rational cooperation by co-action in social dilemmas*, September 23 2015, Institute Colloquium IMSc, Chennai.
- *Symmetry warrants rational cooperation in social dilemmas*, July 10, SING-11 GTM-2015, St. Petersburg, Russia.
- *A novel solution framework for Prisoner's Dilemma and other two-person games*, November 5, SMSEC-2014, Kobe, Japan.
- *Can selfish rational agents achieve cooperation ?*, March 15 2014, Econophys-Kolkata VIII, SINP Kolkata.
- *A continuum percolation problem*, April 18 2013, IMSc Chennai.
- *Stochastic strategies in Minority game*, April 15 2013, IMSc Chennai.
- *Continuum percolation of overlapping discs with a distribution of radii having a power-law tail*, 2013, SFPSP, Leuven, Belgium.

Research Grants

- UGC Start-up Grant (May 2017).

Refresher Course

- Science Academies' Refresher Course in Statistical Physics, May 02-16 2018, Bishop Moore College, Mavelikkara.

Publications

Journal articles

1. Anupama Sharma, Shakti N. Menon, **V. Sasidevan** and Sitabhra Sinha, *Epidemic prevalence information on social networks mediates emergent collective outcomes in voluntary vaccine schemes*, arXiv:1709.07674 (2017).
2. **V. Sasidevan**, Appilineni Kushal and Sitabhra Sinha, *When Big Data Fails! Adaptive agents using coarse-grained information have competitive advantage*, *Phy. Rev. E (Rapid Communication)* (2018) (Accepted).

3. Shakti N. Menon, **V. Sasidevan**, and Sitabhra Sinha, *Emergence of cooperation as a non-equilibrium transition in noisy spatial games*, *Frontiers in Physics* 6, 34 (2018).
4. **V. Sasidevan** and Sitabhra Sinha, *Co-action provides rational basis for the evolutionary success of Pavlovian strategies*, *Scientific Reports* 6, 30831 (2016).
5. **V. Sasidevan**, *Effect of detailed information in the minority game: Optimality of 2-day memory and enhanced efficiency due to random exogenous data*, *Journal of Statistical Mechanics: Theory and Experiment* 7, 073405 (2016).
6. **V. Sasidevan** and Sitabhra Sinha, *Symmetry warrants rational cooperation by co-action in Social Dilemmas*, *Scientific Reports* 5, 13071 (2015).
7. **V. Sasidevan** and Deepak Dhar, *Strategy switches and co-action equilibria in a minority game*, *Physica A* 402, 306 (2014).
8. **V. Sasidevan**, *Continuum percolation of overlapping disks with a distribution of radii having a power-law tail*, *Phys. Rev. E* 88, 022140 (2013).
9. Deepak Dhar, **V. Sasidevan** and Bikas K. Chakrabarti, *Cooperation amongst competing agents in minority game*, *Physica A* 390, 3477 (2011).

Book Chapters

1. **V. Sasidevan**, *Minority Game: An overview and recent results* in *Econophysics of Kolkata Restaurant Problems & Related Games: Classical & Quantum Strategies*, Bikas K. Chakrabarti et al. (Springer, Milan) (2017).
2. Appilineni Kushal, **V. Sasidevan** and Sitabhra Sinha, *Information asymmetry and the performance of agents competing for limited resources* in *Econophysics and Sociophysics: Recent Progress and Future Directions* eds. Abergel F et. al. (Springer, Milan) (2017).
3. **V. Sasidevan** and Sitabhra Sinha, *A Dynamical View of Different Solution Paradigms in Two-Person Symmetric Games: Nash Versus Co-action Equilibria* in *Econophysics and Data Driven Modelling of Market Dynamics* eds. Abergel F et. al. (Springer, Milan) 213-224 (2015).