

**Dipanjan Mandal** Curriculum Vitae  
University of Warwick – Coventry, CV5 7AL, United Kingdom  
☎ +44-7591618336 • ✉ dipanjan.mandal@warwick.ac.uk  
🏠 Homepage

## PERSONAL INFORMATION

---

Date of Birth : 17th January, 1992

Nationality : India

## EDUCATION

---

<b>The Institute of Mathematical Sciences</b> <i>Ph.D. in Theoretical Physics, supervisor : Prof. R. Rajesh</i>	<b>Chennai, India</b> 2014-2019
<b>The Institute of Mathematical Sciences</b> <i>M.Sc. in Physics</i>	<b>Chennai, India</b> 2012–2014
<b>Ramakrishna Mission Vidyamandira (University of Calcutta )</b> <i>B.Sc. with Honours, Physics</i>	<b>Howrah, India</b> 2009–2012

## RESEARCH EXPERIENCE

---

<b>University of Warwick</b> <i>Post Doctoral Research Associate</i>	<b>Coventry, United Kingdom</b> 2019-current
<b>Tata Institute of Fundamental Research</b> <i>Post Doctoral Fellow</i>	<b>Hyderabad, India</b> 2019

## RESEARCH AREA

---

- [Nucleation in simple model](#)
- [Phase transitions in Hard Core Lattice Gas model](#)
- [Jamming and Percolation transition](#)
- [Active Random Walk](#)

## RESEARCH PUBLICATION

---

1. *Phases of the hard-plate lattice gas on a three-dimensional cubic lattice*  
Dipanjan Mandal, Geet Rakala, Kedar Damle, Deepak Dhar, R. Rajesh  
[Phys. Rev. E 107, 064136 \(2023\)](#) [arXiv:2109.02611]
2. *Spontaneous layering and power-law order in the three-dimensional fully-packed hard-plate lattice gas*

- Geet Rakala, Dipanjan Mandal, S. Biswas, Kedar Damle, Deepak Dhar, R. Rajesh  
[Phys. Rev. E 107, 064137 \(2023\)](#) [[arXiv:2109.02619](#)]
3. *Kinetic control of competing nuclei in a dimer lattice-gas model*  
Dipanjan Mandal, David Quigley  
[J. Chem. Phys. 157, 214501 \(2022\)](#) [[arXiv:2208.06403](#)]
  4. *The freezing phase transition in hard core lattice gases on triangular lattice with exclusion up to seventh next-nearest neighbor*  
A. A. A. Jaleel, Dipanjan Mandal, J. E. Thomas, R. Rajesh  
[Phys. Rev. E 106 \(4\), 044136 \(2022\)](#) [[arXiv:2206.04985](#)]
  5. *Active random walks in one and two dimensions*  
Stephy Jose, Dipanjan Mandal, Mustansir Barma, Kabir Ramola  
[Phys. Rev. E 105 \(6\), 064103 \(2022\)](#) [[arXiv:2202.02995](#)]
  6. *Rejection-free cluster Wang-Landau algorithm for hard-core lattice gases*  
A. A. A. Jaleel, J. E. Thomas, Dipanjan Mandal, Sumedha, R. Rajesh  
[Phys. Rev. E 104 \(4\), 045310 \(2021\)](#) [[arXiv:2108.01402](#)]
  7. *Hard core lattice gas with third next-nearest neighbor exclusion on triangular lattice: One or two phase transitions?*  
A. A. A. Jaleel, Dipanjan Mandal, R. Rajesh  
[J. Chem. Phys. 155 \(22\), 224101 \(2021\)](#) [[arXiv:2108.03547](#)]
  8. *Nucleation rate in the two dimensional Ising model in the presence of random impurities*  
Dipanjan Mandal, David Quigley  
[Soft Matt. 17 \(38\), 8642-8650 \(2021\)](#) [[arXiv:2108.04799](#)]
  9. *Breaking universality in random sequential adsorption on a square lattice with long-range correlated defects*  
Sumanta Kundu, Dipanjan Mandal  
[Phy. Rev. E 103 \(4\), 042134 \(2021\)](#) [[arXiv:2102.12821](#)]
  10. *Phase diagram of a system of hard cubes on the cubic lattice*  
N. Vigneshwar, Dipanjan Mandal, Kedar Damle, Deepak Dhar, R. Rajesh  
[Phys. Rev. E 99 \(5\), 052129 \(2019\)](#) [[arXiv:1902.06408](#)]
  11. *Non-Markovianity of qubit evolution under the action of spin environment*  
Sagnik Chakraborty, Arindam Mallick, Dipanjan Mandal, Sandeep K. Goyal, Sibasish Ghosh  
[Sci. Rep. 9, 2987 \(2019\)](#) [[arXiv:1703.02749](#)]
  12. *Phase transitions in a system of hard Y-shaped particles on the triangular lattice*  
Dipanjan Mandal, Trisha Nath, R. Rajesh  
[Phys. Rev. E 97, 032131 \(2018\)](#) [[arXiv:1712.02301](#)]
  13. *The columnar-disorder phase boundary in a mixture of hard squares and dimers*

Dipanjan Mandal, R. Rajesh  
[Phys. Rev. E 96, 012140 \(2017\) \[arXiv:1704.08052\]](#)

14. *Estimating the Critical Parameters of the Hard Square Lattice Gas Model*

Dipanjan Mandal, Trisha Nath, R. Rajesh  
[J. Stat. Mech. 2017, 043201 \(2017\) \[arXiv:1702.02332\]](#)

## TECHNICAL SKILL

---

- C, OpenMP, Mathematica, MATLAB, Gnuplot, LAMMPS (learning)

## SCHOLARSHIP

---

- *Qualified for INSPIRE Scholarship, SHE (Scholarship for Higher Education awarded by Department of Science and Technology, Govt. of India) in 2009.*
- *Qualified, JEST (Joint Entrance Screening Test jointly held by all of the Research Institutes in India) in 2012.*

## RESEARCH TALK

---

**Title : Nucleation in the presence of static/dynamic impurities in 2D Ising lattice-gas**  
*International Soft Matter Conference 2023, Osaka, Japan*

**Title : Kinetic control of competing nuclei in dimer lattice-gas**  
*APS March Meeting 2023, Las Vegas, USA*

**Title : Kinetic control of competing nuclei in a dimer lattice-gas model**  
*Thermodynamics 2022, Bath, UK*

**Title : Phase transitions in a system of hard plates on the three dimensional cubic lattice**  
*Conference on Computational Physics 2021, Online*

**Title : Phase transitions in the system of hard Y-shaped particles on triangular lattice**  
*APS March Meeting 2018, Los Angeles, USA*

## POSTER PRESENTATION

---

**Title : Nucleation in the presence of impurities with varying interaction strengths in 2D Ising lattice-gas**  
*CCP5 2023*

**Title : Kinetic control of competing nucleation in a system of interacting dimers on square lattice**  
*Understanding Crystallisation: Faraday Discussion 2022*

**Title : Nucleation in the two dimensional Ising model in the presence of random impurities**  
*Solutions in Summer 2021*

**Title : Estimating the critical parameters of the hard square lattice gas model**  
*Indian Statistical Physics Community Meeting 2017*

**Title : Phase transitions in the system of hard Y-shaped particles on triangular lattice**  
*Indian Statistical Physics Community Meeting 2018*

## **SCHOOLS & CONFERENCES**

---

### **CCP5 2023**

*University of Warwick, Coventry, UK*

*11th-13th September, 2023*

### **International Soft Matter Conference 2023**

*Osaka, Japan*

*4th-8th September, 2023*

### **APS March Meeting 2023**

*Las Vegas, USA*

*5th-10th March, 2023*

### **Thermodynamics 2022**

*Bath, UK*

*7th-9th September, 2022*

### **Understanding Crystallisation: Faraday Discussion**

*York, UK*

*28th-31st March, 2022*

### **Conference on Computational Physics**

*Online*

*1st-5th August, 2021*

### **IOP Advanced School: Solutions in Summer**

*Online*

*5th-9th July, 2021*

### **APS March Meeting 2018**

*Los Angeles, USA*

*5th-9th March, 2018*

### **Indian Statistical Physics Community Meeting 2018**

*International Centre for Theoretical Sciences, Bangalore, India*

*16th-18th February, 2018*

### **Indian Statistical Physics Community Meeting 2017**

*International Centre for Theoretical Sciences, Bangalore, India*

*17th-19th February, 2017*

### **Fracmeet 2017**

*The Institute of Mathematical Sciences, Chennai, India*

*4th-7th January, 2017*

### **Bangalore school on statistical Physics - VII**

*International Centre for Theoretical Sciences, Bangalore, India*

*1st-15th July, 2016*

### **Bangalore school on statistical Physics - VI**

*Raman Research Institute, Bangalore, India*

*2nd-18th July, 2015*

## REFERENCES

---

- *Prof. David Quigley*  
Affiliation : Department of Physics, University of Warwick, Coventry, CV5 7AL, United Kingdom.  
Email- *d.quigley@warwick.ac.uk*
- *Prof. R. Rajesh*  
Affiliation : Institute of Mathematical Sciences, IV Cross Road, CIT Campus, Taramani, Chennai 600113, Tamil Nadu, India.  
Email- *rrajesh@imsc.res.in*
- *Prof. Kabir Ramola*  
Affiliation : Centre for interdisciplinary Sciences, Tata Institute of Fundamental Research, Hyderabad, India.  
Email- *kramola@tifrh.res.in*