

# Guruprasad Prakash Kadam (Ph.D.)

## Current Affiliation

Designation: DST-INSPIRE Faculty  
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## Personal Details

Date of Birth: December 18, 1986  
Age: 35  
Nationality: Indian  
Sex: Male  
Marital Status: Married  
Children: 2

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## Professional Experience

2020-Present **DST-INSPIRE Faculty**,  
Institution: School of Physical Sciences, NISER, Bhubaneswar, India.  
2018-2020 **DST-INSPIRE Faculty (DST)**,  
Institution: Department of Physics, Shivaji University, Kolhapur, India.  
2017-2018 **D.S. Kothari Fellow (UGC)**,  
Institution: Department of Physics, Shivaji University, Kolhapur, India (State Government University).  
2016-2017 **Post Doctoral Fellow**,  
Institution: Department of Theoretical Physics,  
Tata Institute of Fundamental Research, Mumbai, India.  
2016-2016 **Post Doctoral Fellow**,  
Institution: Theory Division, Physical Research Laboratory, Ahmedabad, India.

## Education

2011-2016 **Ph.D.** (Theoretical Physics)  
Institution: Physical Research Laboratory, Ahmedabad, India.  
**Thesis Title: Phenomenological studies of strongly interacting matter under extreme conditions**  
2007-2009 **M.Sc.**, Physics (First class with distinction)  
Institution: Department of Physics, Shivaji University, Kolhapur, India.  
2005-2007 **B.Sc.**, Physics (First class with distinction)  
Institution: Vivekanand College, Shivaji University, Kolhapur, India.

## Research Area

Quantum chromodynamics (QCD), QCD phase diagram, Heavy-Ion physics, Non-equilibrium physics, Phase transition and critical phenomena. Hydrodynamics.

## Other area(s) of Interest

1. Quantum Field Theories
2. Quantum Information, Quantum Computing, Quantum Optics
3. Foundations of quantum mechanics, Spacetime, Gravity, Quantum Gravity, Black holes.

## Publications

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| 2021 | <ol style="list-style-type: none"> <li>1. <b>G. Kadam</b>, H. Mishra, M. Panero, <i>Critical exponents and transport properties near the QCD critical endpoint from the statistical bootstrap model</i>, Eur.Phys.J.C <b>81</b> (2021) 9, 795.</li> <li>2. S. Pal, <b>G. Kadam</b>, H. Mishra, A. Bhattacharyya, <i>Effects of hadronic repulsive interactions on the fluctuations of conserved charges</i>, Phys. Rev. D <b>103</b>, (2021) 5, 054015.</li> </ol>   |
| 2020 | <ol style="list-style-type: none"> <li>1. <b>G. Kadam</b>, S. Pal, A. Bhattacharyya, <i>Interacting hadron resonance gas model in magnetic field and the fluctuations of conserved charges</i>, J. Phys. G <b>47</b>, 125106 (2020), [arXiv:1908.10618] .</li> </ol>   |
| 2019 | <ol style="list-style-type: none"> <li>1. <b>G.P. Kadam</b> and H. Mishra, <i>Hadron resonance gas with repulsive mean field interaction: Thermodynamics and transport properties</i>, Phys. Rev. D <b>100</b>, 074015 (2019), arXiv:1907.02199</li> <li>2. <b>G.P. Kadam</b> and S. Pawar, <i>Hadron resonance gas EoS and the fluidity of matter produced in HIC</i>, Adv.High Energy Phys. <b>2019</b> 6795041 (2019), arXiv:1802.01942.</li> <li>3. P. Singha, A. Abhishek, <b>G.P. Kadam</b>, S. Ghosh and H. Mishra, <i>Calculations of shear, bulk viscosities and electrical conductivity in the Polyakov-quark-meson model</i>, J. Phys. G<b>46</b>, 015201 (2019), arXiv:1705.03084.</li> <li>4. <b>G.P. Kadam</b>, S. Pawar and H. Mishra, <i>Estimating transport coefficients of interacting pion gas with K-matrix cross sections</i>, J. Phys. G<b>46</b>, 015102(2019), arXiv:1807.05370.</li> </ol> |
| 2018 | <ol style="list-style-type: none"> <li>1. <b>G.P. Kadam</b>, H. Mishra and L. Thakur, <i>Electrical and thermal conductivities of hot and dense hadronic matter</i>, Phys. Rev. D <b>98</b>, 114001 (2018), arXiv:1712.03805.</li> </ol>   |
| 2017 | <ol style="list-style-type: none"> <li>1. L. Thakur, P.K. Srivastav, <b>G.P. Kadam</b>, M. George, H. Mishra, <i>Shear viscosity <math>\eta</math> to electrical conductivity <math>\sigma</math> ratio for an anisotropic QGP</i>, Phys. Rev. D <b>95</b>, 096009 (2017), [arXiv:1703.03142 [hep-ph]].</li> </ol>   |
| 2016 | <ol style="list-style-type: none"> <li>1. P. Deb, <b>G.P. Kadam</b>, H. Mishra, <i>Estimating transport coefficients in hot and dense quark matter</i>, Phys. Rev. D <b>94</b>, 094002 (2016) , [arXiv:1603.01952 [hep-ph]].</li> <li>2. <b>G.P. Kadam</b>, H. Mishra, <i>Medium modification of hadron masses and the thermodynamics of hadron resonance gas model</i>, Phys. Rev. C <b>93</b>, no. 2, 025205 (2016) , [arXiv:1509.06998 [hep-ph]].</li> </ol>  |
| 2015 | <ol style="list-style-type: none"> <li>1. <b>G.P. Kadam</b>, H. Mishra, <i>Dissipative properties of hot and dense hadronic matter in an excluded-volume hadron resonance gas model</i>, Phys. Rev. C <b>92</b>, no. 3, 035203 (2015) , [arXiv:1506.04613 [hep-ph]].</li> <li>2. <b>G.P. Kadam</b>, <i>Transport properties of hadronic matter in magnetic field</i>, Mod. Phys. Lett. A <b>30</b>, no. 10, 1550031 (2015) , [arXiv:1412.5303 [hep-ph]].</li> </ol>  |
| 2014 | <ol style="list-style-type: none"> <li>1. <b>G.P. Kadam</b>, H. Mishra, <i>Bulk and shear viscosities of hot and dense hadron gas</i>, Nucl. Phys. A <b>934</b>, 133 (2014) , [arXiv:1408.6329 [hep-ph]].</li> </ol>   |

## Preprints/Communaicated

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|------|---|
| 2022 | <ol style="list-style-type: none"> <li>1. <b>G. Kadam</b>, <i>Dynamic density correlations in a baryon rich fluid using Mori-Zwanzig projection operator method</i> , (Communicated to Physical Review D).</li> </ol> |
|------|---|

- 2021 | 1. S. Pal, **G. Kadam**, A Bhattacharyya, *Hadron resonance gas model with repulsive mean-field interactions: specific heat, isothermal compressibility and speed of sound*, (Accepted for publication in Nuclear Physica A).

## Research Metrics

**h-index:** 9 (Source: Google Scholar)

**i10-index:** 9 (Source: Google Scholar)

**Citations :** 285 (Source: Google Scholar)

: 315 (Source: iNSPIRE HEP)

**ORCiD ID :** <https://orcid.org/0000-0002-7015-2072>

**Google Scholar :** <https://scholar.google.com/citations?user=QKONmGwAAAAJ&hl=en>

**iNSPIRE HEP :** <https://inspirehep.net/literature?sort=mostrecent&size=25&page=1&q=a%20guru%20kadam&ui-citation-summary=true>

## Projects

Sr. No	Funding Agency	Title	Amount	Status
1	DST	Transport Coefficients near the QCD critical point	35 Lakhs	Ongoing

## Teaching Experience

Total Experience: **3+ Years**

**Courses Taught (PG):** Quantum Mechanics-I, Quantum Mechanics-II, Quantum Field Theory, General Relativity.

**Courses Taught (UG):** Quantum Mechanics (for Nanoscience and Nano Technology)

**Laboratory Duties:** Mathematica and FORTRAN lab duties for the PG course.

**Project Supervised:** Supervised PG students for M.Sc. projects.

**Other Duties:** Drafted the syllabus for Quantum Mechanics, Quantum Field Theory and General Relativity for Shivaji University, Kolhapur (State Government University).

## Awards/Achievements

1. Secured all India rank-136 in UGC-CSIR National Eligibility Test(NET) held in December 2010.
2. Secured all India rank-250 in Joint Entrance Screening Test(JEST) held in February 2011.
3. Secured all India rank-349 in Graduate Aptitude Test In Engineering(GATE) held in February 2011.
4. Awarded prestigious Smt. Gangabai Dattatraya Kulkarni Ichalkaranji prize for securing highest number of marks in Physics at M.Sc. Examination held in April 2009.
5. Awarded UGC's Dr. D.S. Kothari Fellowship in August 2017.
6. Awarded DST-INSPIRE Faculty in February 2018.

## School/Workshop/Conference attended

1. Lecture Workshop on High Energy Physics, IIT Bombay, India, January 2013
2. XXVIII THEP SERC SCHOOL, IIT Kanpur, India, November 2013
3. Workshop on QCD at high density, TIFR Mumbai, India, January 2015
4. CNT lectures on hot/dense matter, VECC Kolkata, India, February 2015
5. DAE-BRNS HIGH ENERGY PHYSICS SYMPOSIUM 2020

## Seminar/Talk(s)

1. *Bulk viscosity of strongly interacting matter*, Physical Research Laboratory, India, July 2013.
2. *Dissipative properties of hot and dense hadronic matter in excluded volume hadron resonance gas model*, Physical Research Laboratory, India,, July 2015.
3. *Improving the hadron resonance gas model*, Physical Research Laboratory, India, July 2015.
4. *Hadron resonance gas model and the transport properties of hadronic matter*, (Invited talk) Tata Institute of Fundamental Research, Mumbai, India, 7 January 2016.
5. *Transport coefficients of QCD matter*, (Invited Talk), School of Physical Sciences, NISER, Khorda, Odisha, India, November 2019.
6. *Criticality in hadron resonance gas model: Thermodynamics and transport coefficients*, (DAE-BRNS HEP Symposium talk), December 2020

## eSkills

### Programming Languages

FORTRAN, PYTHON, Mathematica

### Operating Systems

LINUX, Windows, MacOS

## Referee Details:

### Prof. Marco Panero

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Department of Physics, University of Turin (and INFN)  
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### Prof. Hiranmaya Mishra

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**Prof. Abhijit Bhattacharyya**

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**Prof. Rajiv Gavai**

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