

## JASKARAN SINGH

Department of Physics, Punjabi University Patiala, 147002, India.

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### ACADEMIC QUALIFICATION

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#### **Ph.D. in Physics**

*Aug. 2013 - Aug. 2022*

Department of Physical Sciences

Indian Institute of Science Education and Research (IISER) Mohali

**Supervisor:** Dr. Yogesh Singh

#### **M. Sc. Physics (Hons. School)**

*July 2009 - May 2011*

Department of Physics.

Panjab University,

Chandigarh

#### **B. Sc.**

*July 2006 - April 2009*

Govt. Shivalik College, Naya Nangal

Punjabi University, Patiala

### CURRENT RESEARCH

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**Broad Subject Area:** Physical Sciences

**Area of Specialization:** Condensed Matter Physics

I am working on superconductors with conventional and unconventional behaviors. The transition from the normal to the superconducting phase is accompanied by remarkable changes in measurable properties like electric transport, magnetization, and heat capacity, among others. Measurements of these properties provide a powerful tool to address the nature of superconductivity. My research involves the synthesis of polycrystalline and single-crystalline samples of superconducting materials. Then characterization like x-ray diffraction, magnetization, magnetic susceptibility, specific heat, electronic transport, and high-pressure measurements are carried out to understand the anomalous behavior of these materials.

### EMPLOYMENT

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#### **Assistant Professor**

*April 2016 - Present*

Department of Physics, Punjabi University

Patiala - 147002, India

#### **Assistant Professor(Resource Person)**

*Sept. 2012 - April 2013*

Post Graduate Govt. College for

Girls, Sector-11, Chandiagrh.

### TEACHING EXPERIENCE ( 7 YEARS )

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#### **Courses Taught at Graduate Level**

(1) *Mechanics* (B.Sc. I).

(2) *Electricity and Magnetism* (B. Sc. I).

- (3) *Lab course-Mechanics* (B.Sc. I).
- (4) *Fundamentals of Mechanics* (Open Elective Course for MD FYIP-MCS/BIO-I)

### **Courses Taught at Postgraduate Level**

- (1) *Classical Electrodynamics* (M.Sc. Physics-I).
- (2) *Statistical Mechanics* (M.Sc. Physics-I).
- (3) *Statistical Mechanics* (M.Sc. Applied Physics-II).
- (4) *Mathematical Methods of Physics-I* (M.Sc. Physics-I).
- (5) *Mathematical Physics and Classical Mechanics* (M.Sc. Applied Physics-I).
- (6) *Applied Mathematics* (M.Sc. Applied Physics-I).
- (7) *Laboratory Practice: Condensed Matter Physics* (M.Sc. Physics-II).
- (8) *Laboratory Practice: Electronics* (M.Sc. Physics-I).

### **PUBLICATIONS**

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#### **Published articles**

- 2018 Possible multigap type-I superconductivity in the layered boride RuB<sub>2</sub> **Jaskaran Singh**, Anooja Jayaraj, D. Srivastava, S. Gayen, A. Thamizhavel, and Yogesh Singh  
**PHYSICAL REVIEW B 97, 054506 (2018).**
- 2020 Doping-induced metal to insulator transition and the thermal transport properties in germanium. Anzar Ali, **Jaskaran Singh** and RK Gopal.  
**AIP Conference Proceedings 2115, 030453 (2019).**
- 2020 Spectroscopic signature of two superconducting gaps and their unusual field dependence in RuB<sub>2</sub> Soumya Datta, Aastha Vasdev, Soumyadip Halder, **Jaskaran Singh**, Yogesh Singh and Goutam Sheet  
**Journal of Physics: Condensed Matter, Volume 32, Number 31 (2020).**
- 2023 Role of electronic correlations in the Kagome-lattice superconductor LaRh<sub>3</sub>B<sub>2</sub> Savita Chaudhary, Shama, Jaskaran **Singh**, Armando Consiglio, Domenico Di Sante, Ronny Thomale, and Yogesh Singh  
**Physical Review B 107 (8), 085103**

### **CONFERENCE/WORKSHOP PARTICIPATION**

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- 2023 Participated in *One day National Seminar on Condensed Matter Physics and Materials (CMPM-2023)*, held at Department of Physics, Punjabi University Patiala, Punjab, May 8, 2023.
- 2022 Presented a poster at IISER-INST bilateral Meeting, held at Institute of Nano Science and Technology, India, March 14-15, 2022.
- 2016 Participated in an International Workshop on Emergent Phenomena in Quantum Hall Systems, held at TATA Institute of Fundamental Research, Mumbai, India, January 7-9, 2016.
- 2016 Presented a poster in a conference 'Emerging Trend in Advanced Functional Material' held in the institute of Physics Bhubaneswar during Dec 18-22, 2016

## ACADEMIC SERVICES

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- Member, Board of UG/PG Studies in Physics at Punjabi University, Patiala.
- Secretary of Academic and Administrative Committee (AACD) of Physics Department.
- Member of Academic and Administrative Committee (AACD) of Physics Department.
- Member of different Departmental Committees (Admission Committee, Fee Concession Committee, Scholarship Committee, Career and Guidance Students Activities).
- Incharge, Library of Department of Physics, Punjabi University Patiala.
- Subject Expert in the KISHORE VAIGYANIK PRO TSAHAN YOJANA (KVPY) interviews committee at IISER Mohali during January 26-28, 2019.
- Subject Expert in the KISHORE VAIGYANIK PRO TSAHAN YOJANA (KVPY) interviews committee at IISER Mohali during February 10-12, 2018.
- Incharge, Career and Placement, Sciences, Punjabi University, Patiala.
- Member of organizing committee for *One day National Seminar on Condensed Matter Physics and Materials (CMPM-2023)*, held at Department of Physics, Punjabi University Patiala, Punjab, May 8, 2023.

## ACADEMIC ACHIEVEMENTS

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- 2013 Qualified Joint Entrance Screening Test (JEST) in Physics.
- 2012 Qualified National Eligibility Test (NET) for Lectureship conducted jointly by University Grants Commission (UGC) and Council of Scientific and Industrial Research (CSIR), India.
- 2013 Awarded Junior Research Fellowship (JRF) by UGC from 2013-2016.
- 2012 Qualified Graduate Aptitude Test in Engineering (GATE) conducted by Indian Institute of Technology Delhi, India.

## COMPUTATIONAL SKILLS

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L<sup>A</sup>T<sub>E</sub>X, Mathematica, Origin.

