

**NAME** Bibhas Bhattacharyya  
**DESIGNATION** Associate Professor & Head of the Department (2013-)  
**DEPARTMENT** Physics

### **EDUCATIONAL BACKGROUND**

- Ph. D., University of Calcutta (2000)
- Post-M.Sc. Associateship Course in Physics, Saha Institute of Nuclear Physics, Kolkata (1990-'91)
- M. Sc. (Physics), University of Calcutta (1989)

### **TEACHING EXPERIENCE**

- **Associate Professor in Physics**, West Bengal State University, Barasat, West Bengal (2012– ), [Postgraduate]
- **Reader in Physics**, West Bengal State University, Barasat, West Bengal (2009–2012), [Postgraduate]
- **Reader in Physics**, Jadavpur University, West Bengal (2008 – 2009) [Undergraduate & Postgraduate]
- **Guest Lecturer in Chemistry**, Scottish Church College, Kolkata, West Bengal (2007 – 2008) [Postgraduate]
- **Guest Lecturer in Physics**, University of Calcutta, Kolkata, West Bengal (2003-2004 & 2004-2005) [Postgraduate]
- **Lecturer** (subsequently **Reader**) in **Physics**, Scottish Church College, Kolkata, West Bengal (1997 – 2008) [Undergraduate]
- **Lecturer in Physics**, Durgapur Govt. College, Durgapur, West Bengal (1996 – 1997) [Undergraduate]

### **COURSES TAUGHT**

#### **Postgraduate Courses:**

- Statistical Mechanics
- Quantum Mechanics
- Introductory Solid State Physics
- Introductory Nuclear Physics
- Advanced Condensed matter Physics:
  - (i) Physics of Disordered Solids
  - (ii) Lattice Dynamics
  - (iii) Many-body theory of electronic systems
  - (iv) Superconductivity

### **Undergraduate Courses:**

- Mathematical Methods of Physics
- Classical Mechanics
- Kinetic Theory of Gases
- Special Theory of Relativity
- Atomic and Molecular Physics
- Statistical Mechanics
- Solid State Physics

### **RESEARCH INTERESTS**

- Electronic correlation in condensed matter systems
- Disordered solids
- Electronic transport in fractals and hierarchical structures
- Renormalization Group and Critical Phenomena
- Physics Teaching

### **RESEARCH PROJECTS**

1. Jadavpur University Research Grant (2008-2009):  
Project title: **Theoretical Investigations on the Effects of Electronic Correlation in Novel Low-dimensional Systems** (*completed in 2009*)

### **RESEARCH PUBLICATIONS (2000 onwards)**

#### **Condensed Matter Physics:**

1. **Quasi-one dimensional graphite ribbon structures in the presence of a magnetic field and the on-site Coulomb correlation at half-filling**, J. Chowdhury, S. Sil, S. N. Karmakar and B. Bhattacharyya, *European Physical Journal B* **76** (2010) 435
2. **Effect of external electric field on the charge density waves in one-dimensional Hubbard superlattices**, J. Chowdhury, S. N. Karmakar and Bibhas Bhattacharyya, *Journal of Physics: Condensed Matter* **21** (2009) 015302
3. **Ground-state phase diagram and magnetoconductance of a one-dimensional Hubbard superlattice at half filling**, J. Chowdhury, S. N. Karmakar and Bibhas Bhattacharyya, *Physical Review B* **75** (2007) 235117
4. **Effect of Fibonacci modulation on superconductivity**, Sanjay Gupta, Shreekantha Sil and Bibhas Bhattacharyya, *Journal of Physics: Condensed Matter* **18** (2006) 1987

5. **Fibonacci–Hubbard chain at zero and finite temperatures**, Sanjay Gupta, Shreekantha Sil and Bibhas Bhattacharyya, *Physica B* **355** (2005) 299
6. **Half-filled Hubbard ring with alternating site potentials in a magnetic field**, Sanjay Gupta, Shreekantha Sil and Bibhas Bhattacharyya, *Physics Letters A* **324** (2004) 494
7. **Ground state of a chemically modulated Hubbard chain at half-filling**, Sanjay Gupta, Shreekantha Sil and Bibhas Bhattacharyya, *Phys. Rev. B* **63**, 125113 (2001); *ibid.* **64**, 169903(E) (2001)
8. **Anomalous transmission in a hierarchical lattice**, Anirban Chakraborti, Bibhas Bhattacharyya and Arunava Chakrabarti, *Phys. Rev. B* **61**, 7395 (2000)

#### **Physics Teaching:**

1. **Bounds on the ground state energy: Application of the variational principle**, Bibhas Bhattacharyya, *American Journal of Physics* **77** (2009) 44
2. **Reply to comment on 'looking back into Bohr's atom'**, Bibhas Bhattacharyya, *European Journal of Physics* **27** (2006) L41
3. **Looking back into Bohr's atom**, Bibhas Bhattacharyya, *European Journal of Physics* **27** (2006) 497

#### **OTHER PUBLICATIONS (2004 onwards)**

##### **History of Science:**

1. **A Resume of the Role of the Scottish Church College in the Domain of Physical Sciences**, Arup Roy and Bibhas Bhattacharyya, *Scottish Church College 175th Year Commemoration Volume*, Scottish Church College, Kolkata (2008) 96

#### **INVITED TALKS (2004-2010)**

- **Effect of electronic correlation in one-dimensional superlattices: a theoretical investigation**, Department of Solid State Physics, Indian association for the Cultivation of Science, Kolkata on December 4, 2008.
- **Phase Transitions and Critical Phenomena**, UGC-Academic Staff College, University of Calcutta on September 10 and September 11, 2008.

#### **AREAS OF INTEREST OTHER THAN PHYSICS TEACHING/ RESEARCH**

- Literature
- History of Science
- Physiology and Medicine
- Popularization of Science

#### **MEMBERSHIP OF ACADEMIC INSTITUTIONS/ SOCIETIES**

- Life Member, **Indian Association for the Cultivation of Science**, Jadavpur, Kolkata

#### **AWARDS/FELLOWSHIPS/PRIZES/DISTINCTIONS**

- Senior Research Fellowship, Saha Institute of Nuclear Physics, Kolkata, West Bengal (1991 – 1996)
- Certificate of Merit (CSIR, India): CSIR-UGC National Eligibility Test in Physical Science, (Among top 9 candidates) (1990)
- National Scholarship from the Govt. of India (1987-'88)
- Felicitation from Govt. of West Bengal: Securing 12<sup>th</sup> position in the Merit List of West Bengal Council of Higher Secondary Education (1984)
- Certificate of Merit (AIMT): Talent Search Test in Mathematics conducted by the Association for Improvement of Mathematics Teaching (AIMT), Calcutta (1984)

#### **CONTACT ADDRESS :**

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