



VIDYASAGAR COLLEGE

39 SANKAR GHOSH LANE
KOLKATA

Name: Subhamoy Ghatak

1	Name	Subhamoy Ghatak		
2	Designation	Assistant Professor		
3	Mail ID	subhamoyghatak@gmail.com		
4	Contact No	9064623321		
5	Date of Joining	23 December 2019		
Academic qualifications				
6	Degree	Subject	University	Year
	Ph.D	Physics	Indian Institute of Science	2014
	M.Phil	--	--	--
	MA/M.sc	Physics	IIT Kharagpur	2008
	BA/B.Sc	Physics	R K Mission Vidyamandira	2006
PH.D. DETAILS				
7	Title of the Thesis	Electrical transport and low-frequency noise in field-effect transistor		
	Field of specialization under subject/ discipline	Nanoelectronics and Semiconductor technology		
8	PREVIOUS POSITIONS/Engagement	Post Doc researcher, TIFR Mumbai		
9	Google scholar page:	https://scholar.google.com/citations?user=bY_iDc8AAAAJ&hl=en&authuser=1		
10	ORCID ID	--		
11	HONOURS AND AWARDS	Prof. K.L. Chopra prize at IIT KGP and Prof. Anil Kumar memorial medal at IISc.		
12	CURRENT RESEARCH PROJECT/Field of Research	Electrical transport studies on two-dimensional semiconductor, semimetal, topological insulator field-effect transistors.		
13	TECHNICAL UNDERSTANDING AND EXPERIENCE	<p>a. Semiconductor device fabrication and characterization: Working in cleanroom environment, optical and electron beam lithography, thermal evaporation, sputtering, wire bonding, Scanning electron microscopy, atomic force microscopy</p> <p>b. Making suspended device structures: High mobility suspended graphene transistor, MEMS and NEMS</p> <p>c. Flexible and transparent electronics: Van der Waals heterostructures with layered materials, such as, graphene, MoS2, boron nitride, topological insulators, ferromagnetic insulators etc.</p> <p>d. Spintronic devices: Fabrication of ferromagnetic (NiFe, Co) contacts with Al2O3, MgO tunnel barrier for detection of electronic spin polarization in semiconductors</p> <p>e. Superconducting devices: Josephson junctions based on bulk insulating topological insulator devices (Al-BiSbTeSe2-Al), Graphene-based Josephson junctions with MoRe superconducting contacts, Quantum circuits with graphene-based Josephson junction</p> <p>f. Electrical transport: Conductance and conductance spectroscopy (dI/dV) measurement, low frequency noise (1/f) characterization, spin voltage measurement, Josephson supercurrent measurement.</p> <p>g. Low temperature and high magnetic field: 3He cryostats and 3He/4He dilution refrigerator.</p>		

14	SUMMARY OF RESEARCH EXPERIENCE	<p>1. Post-doc Institute of Scientific and Industrial Research, Osaka University, Japan, Sep 2014 – Oct 2015.</p> <p>2. Post-doc Institute of Physics 2, University of Cologne, Germany, Nov 2015 – Nov 2017.</p> <p>3. Visiting Post-doc Tata Institute of Fundamental Research, Mumbai, India, Feb 2018 - Oct 2018.</p> <p>4. Inspire Faculty Fellow Tata Institute of Fundamental Research, Mumbai, India, Oct 2018 – Dec 2019.</p>
15	EXPERIENCE OF PROJECT MANAGEMENT	Inspire Faculty Fellowship (2018).
16	COMPLETE LIST OF PUBLICATIONS (Maintain Harvard Format)	<p>1. Ghatak, S., Pal, A.N. and Ghosh, A. (2011) 'Nature of electronic states in atomically thin MOS₂ Field-Effect transistors,' ACS Nano, 5(10), pp. 7707–7712. https://doi.org/10.1021/nn202852j.</p> <p>2. Ghatak, S. and Ghosh, A. (2013) 'Observation of trap-assisted space charge limited conductivity in short channel MoS₂ transistor,' Applied Physics Letters, 103(12). https://doi.org/10.1063/1.4821185.</p> <p>3. Pal, A.N. et al. (2011) 'Microscopic Mechanism of 1/f Noise in Graphene: Role of Energy Band Dispersion,' ACS Nano, 5(3), pp. 2075–2081. https://doi.org/10.1021/nn103273n.</p> <p>4. Ghatak, S. et al. (2014b) 'Microscopic origin of low frequency noise in MoS₂ field-effect transistors,' APL Materials, 2(9). https://doi.org/10.1063/1.4895955.</p> <p>5. Yang, F. et al. (2016) 'Switching of charge-current-induced spin polarization in the topological insulator BiSbTeSe₂,' Physical Review B, 94(7). https://doi.org/10.1103/physrevb.94.075304.</p> <p>6. Ghatak, S. et al. (2018b) 'Anomalous Fraunhofer patterns in gated Josephson junctions based on the Bulk-Insulating Topological insulator BiSbTeSe₂,' Nano Letters, 18(8), pp. 5124–5131. https://doi.org/10.1021/acs.nanolett.8b02029.</p>
17	Extracurricular Activities	---
18	Link to personal website (if any)	---