

**DEPARTMENT OF PHYSICS
INDIAN INSTITUTE OF TECHNOLOGY KANPUR**

LIST OF PROJECTS FOR 2022-2023-II SEMESTER

S.No.	Name	Email	Project Title	Program	Remark
1.	Adhip Agarwala	adhip	Quantum Transport through Kirigami metamaterials	MSc-Phd (Dual Degree)	Continuing student
2.	Aditya Kelkar	akelkar	Development of an electron beam based x-ray source.	MSc	Open to all students
3.	Amit Dutta	dutta	Periodically driven systems	MS (BS-MS)	Open to all students
4.	Amit Kumar Agarwal	amitag	Spin transport in quantum materials	MSc	Open to all students
5.	Amit Kumar Agarwal	amitag	Transport and optical phenomena in superconductors	MSc	Open to all students
6.	Anand Kumar Jha	akjha	Orbital Angular Momentum Entanglement	MSc	Open to all students
7.	Anjan Kumar Gupta	anjankg	Quantum Analogs in classical waves	MSc	Continuing student
8.	Anjan Kumar Gupta	anjankg	Proximity induced superconductivity in MoS ₂ by Lead(Pb)	MSc	Continuing student
9.	Arijit Kundu	kundua	Linear response in periodically driven Dirac systems	MSc-Phd (Dual Degree)	Student already selected
10.	Avinash Singh	avinas	Magnetic Ordering and Excitations in Spin-Orbit Coupled Systems	MSc	Open to all students
11.	Chanchal Sow	chanchal	Single crystal growth and magnetism in novel van der Waals crystals.	MSc	Open to all students
12.	Debtosh Chowdhury	debtoshc	Cosmological Perturbations in the Early Universe	MSc	Student already selected
13.	Dipankar Chakrabarti	dipankar	Machine learning to solve eigenvalue problem	MSc	Open to all students
14.	Diptarka Das	didas	DMRG methods for quantum many body systems	MS (BS-MS)	Student already selected
15.	Diptarka Das	didas	Entanglement entropy in quantum field theory	MS (BS-MS)	Continuing student

16.	Diptarka Das	didas	Computational methods for matrix models	MS (BS-MS)	Student already selected
17.	Gautam Sengupta	sengupta	Odd Entanglement Entropy in Boundary Conformal Field Theories	MSc	Continuing student
18.	Gautam Sengupta	sengupta	Reflected Entropy in Boundary Conformal Field Theories	MS (BS-MS)	Continuing student
19.	Gopal Hazra	hazra	Composition of Exoplanet Atmospheres	MS (BS-MS)	Open to all students
20.	Gopal Hazra	hazra	Magnetic fields of the M-dwarf stars	MSc-Phd (Dual Degree)	Open to all students
21.	Jayita Nayak	jnyak	Single crystal growth and characterization of magnetic topological material	MSc	Open to all students
22.	Kaushik Bhattacharya	kaushikb	Field theory of fluids and quantization of fluid excitations	MSc	Open to all students
23.	K P Rajeev	kpraj	Explorations into low energy nuclear reactions in condensed matter	MSc	Open to all students
24.	Krishnacharya	kcharya	Fundamental aspects of nearly zero surface tension fluids.	MSc-Phd (Dual Degree)	Open to all students
25.	Krishnacharya	kcharya	Dynamic thin film interferometry to measure ultrathin fluid films	MSc	Open to all students
26.	Manas Khan	mkhan	Microrheology of out-of-equilibrium systems	MSc	Open to all students
27.	Manoj K Harbola	mkh	Fundamental studies in electronic structure methods	MS (BS-MS)	Open to all students
28.	Mahendra K Verma	mkv	Irreversibility in turbulence	MSc-Phd (Dual Degree)	Open to all students
29.	Mahendra K Verma	mkv	Anisotropy in turbulence	MSc	Open to all students
30.	Narayan Rana	narayan	NLO QCD corrections to production of a scalar particle	MSc	Open to all students
31.	Nilay Kundu	nilayhep	Cosmological perturbations with symmetry	MSc	Continuing student
32.	Nilay Kundu	nilayhep	CFT in momentum space	MSc	Continuing student
33.	Nilay Kundu	nilayhep	Black hole entropy	MSc	Continuing student

34.	Navaneeth Poonthottathil	navaneeth	Experimental investigation of neutrino interaction and their properties	MS (BS-MS)	Open to all students
35.	Vijaya R	rvijaya	Photonic crystal as sensor	MSc	Continuing student
36.	Vijaya R	rvijaya	Fabry-Perot interferometer - spectral analysis	MSc-Phd (Dual Degree)	Continuing student
37.	Rohit Medwal	rmedwal	Spin pumping at ferromagnet/heavy metal interfaces	MSc-Phd (Dual Degree)	Open to all students
38.	Sabyasachi Chakraborty	sabyac	Stellar objects as probes for new physics	MSc	Student already selected
39.	Sagar Chakraborty	sagarc	Evolutionary Stability and Replicator Dynamics in RSP Game	MSc	Student already selected
40.	Saikat Ghosh	gsaikat	Discrete time crystals	MS (BS-MS)	Open to all students
41.	Saikat Ghosh	gsaikat	SU(1,1) interferometers	MS (BS-MS)	Open to all students
42.	Sapam Ranjita Chanu	sranjita	Enhancement cavity for SHG generation in visible and UV	MSc/MSc-Phd dual degree	Open to all students
43.	Sapam Ranjita Chanu	sranjita	Qutrit vs Qubit in quantum simulation	MSc/MSc-Phd dual degree	Open to all students
44.	Satyajit Banerjee	satyajit		MSc	Student already selected
45.	Sivasurender Chandran	schandran	Rheological Behavior of Lipids in two dimensions	MSc	Open to all students
46.	Sivasurender Chandran	schandran	Dewetting Behavior of polymer nanocomposite films	MSc	Open to all students
47.	Soumik Mukhopadhyay	soumikm	Spin dynamics in 2D van der Waals magnets	MS (BS-MS)	Continuing student
48.	Soumik Mukhopadhyay	soumikm	Spin to charge conversion in thin film heterostructures using Inverse Spin Hall Effect	MSc	Continuing student
49.	Sudeep Bhattacharjee	sudeepb	Cryo-plasmas : molecular dynamics simulations and experiments	MS (BS-MS)	Open to all students
50.	Sudeep Bhattacharjee	sudeepb	Capillary guiding, generation and control of focused ion beams	MSc	Open to all students

51.	Sudeep Bhattacharjee	sudeepb	Potential fluctuations in cold atmospheric pressure micro-plasmas under different flow regimes	MSc-Phd (Dual Degree)	Open to all students
52.	Supdeep Kumar Ghosh	skghosh	Classification of superconducting order parameters from space group symmetry	MSc-Phd (Dual Degree)	Open to all students
53.	Supdeep Kumar Ghosh	skghosh	Magnetism in 2D Van der Waals materials	MSc-Phd (Dual Degree)	Open to all students
54.	Supdeep Kumar Ghosh	skghosh	High throughput investigations of time-reversal symmetry breaking superconductors	MS (BS-MS)	Open to all students
55.	Sudipta Dubey	sudiptad	Excitons in van der Waal heterostructures	MSc-Phd (Dual Degree)	Open to all students
56.	Supratik Banerjee	sbanerjee	Electromotive force in the solar wind	MSc	Continuing student
57.	Supratik Banerjee	sbanerjee	Turbulence in spin magnetohydrodynamics	MSc	Open to all students
58.	Supratik Banerjee	sbanerjee	Investigation of Helicity cascade in solar wind	MSc	Open to all students
59.	Tapobrata Sarkar	tapo	Numerical study of tidal disruption events	MS (BS-MS)	Open to all students
60.	Taraknath Mandal	taraknath	Development of coarse-grained model for polymers	MSc	Open to all students
61.	Venkata Jayasurya Yallapragada	jayasurya	Imaging complex scatterers	MSc-Phd (Dual Degree)	Student already selected
62.	Y N Mohapatra	ynm	Localised states in large bandage semiconductors	MSc	Open to all students
63.	Zakir Hossain	zakir	Crystal Growth and Physical Properties of CeAl(Ge,Sn) and CeIr ₂ As ₂	MSc-Phd (Dual Degree)	Student already selected
64.	Zakir Hossain	zakir	Electrical and Magnetotransport properties of oxygen site doped LaMnO ₃	MSc	Student already selected
65.	Zakir Hossain	zakir	Fabrication and Characterization of RAlO ₃	MSc	Student already selected