



Central University of Rajasthan

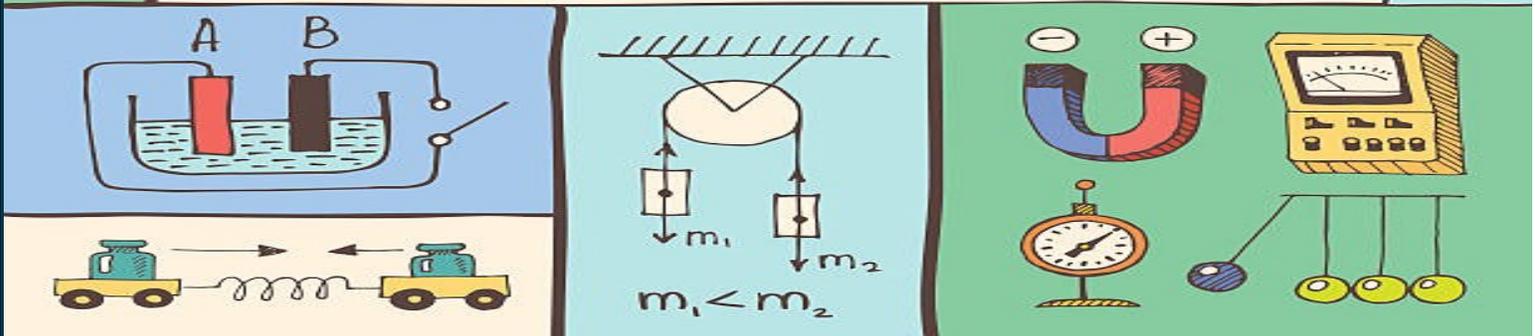
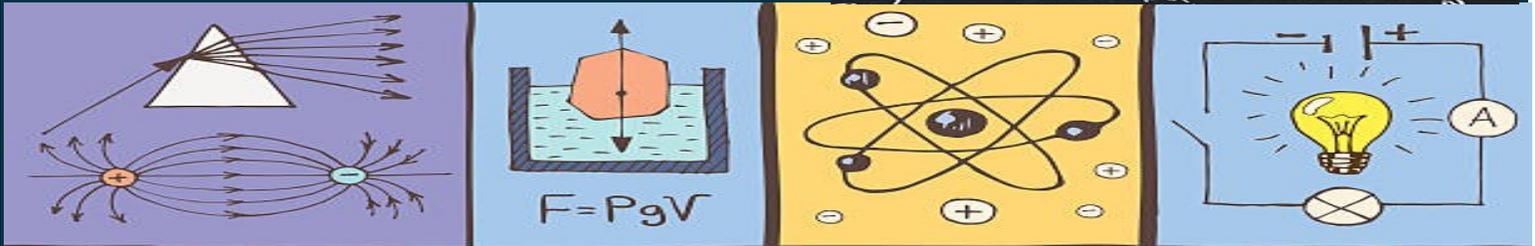
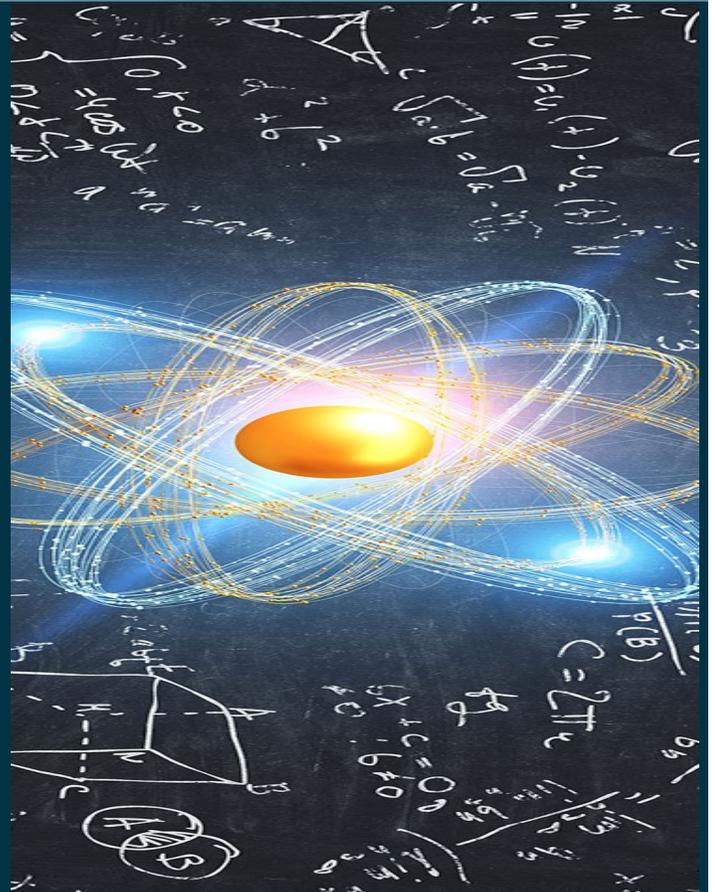
Department of Physics



Prospectus 2021-2022

Contents

- ◇ About the School
- ◇ Academic Programs
- ◇ Faculty Profile
- ◇ Non-teaching staff
- ◇ Students Performance
- ◇ Infrastructure
- ◇ Gallery



About the School

The Department of Physics, School of Physical Sciences, Central University of Rajasthan was established in 2011. The Department has excellent experimental and computational lab facilities for both undergraduate and postgraduate students. The Department of Physics provides the students physics insight and the ability to realize such insights in a creative way thorough a wide-ranging education in both experimental and theoretical subjects. The Department has an excellent team of competent faculty members involved in cutting-edge research and teaching to develop the careers of the next generation of Physicists. Main research areas are condensed matter physics, laser and optics, and non-linear dynamics. The research is also supported by various funding agencies with approximately 4 crore funding. The Department has achieved great success by producing outstanding undergraduate and master students who are employed in world class institutions like BARC, PRL and other academic institutes and also qualified national level exams like NET-JRF, GATE and JEST.



Academic Programs

I. Integrated M.Sc. (5 Y)

Students are admitted after completion of 10+2 in Science stream or equivalent of any recognised board in India with Physics and Mathematics as optional subjects having 50% marks or equivalent grade in aggregate for general category and 45% or equivalent grade for SC/ST/OBC/PWD candidates. After successful completion of the course students are awarded with 5Y Int. M.Sc. Physics degree.

II. Integrated M.Sc. B.Ed. (3 Y)

This unique programme offers M.Sc. B.Ed. Dual degree in 3 years. The objective of this programme is to provide knowledge of Physics along with pedagogical training to nurture the student as a good science teacher. In this programme, students are admitted after completion of B.E./ B.Tech./Bachelor's degree with minimum 50% of marks or equivalent grade in aggregate for general category and 45% or equivalent grade for SC/ST/OBC/PWD candidates in Science with Physics as one of the main subjects.

III. M.Sc. (2 Y)

In this programme, students are admitted after completion of B.E./B.Tech./Bachelor's degree with minimum 50% of marks or equivalent grade in aggregate for general category and 45% or equivalent grade for SC ST/OBC/PWD candidates in Science with Physics as one of the main subjects. After successful completion of the course students are awarded with 2Y M.Sc. Physics degree.

IV. Ph.D. (started in 2014-15)

Students having consistently good academic record and possessing a Master's degree in Physics or in a cognate/allied subject with minimum of 55% marks or equivalent grade from recognized university at both undergraduate and postgraduate level; 5% relaxation in minimum requirement of marks is granted to SC/ST/OBC/PWD candidate.

Faculty Profile

Prof. Manish Dev Shrimali

- **Designation: Professor and Dean-School of Physical Sciences**
- **Qualification: M.Sc. (JNU, New Delhi), Ph. D. (JNU, New Delhi), Post-Doctoral Fellow (Univ. of Tokyo)**
- **Research Interest: Physics of Complex Systems, Nonlinear Dynamics and Chaos**
- **Email id: shrimali@curaj.ac.in**



Dr. Ajit Kumar Patra

- **Designation: Associate Professor**
- **Qualification: M.Sc. , M.Phil., M. Tech. (IIT Kharagpur) Ph.D.: IFW Dresden, Germany, Postdoc: University of Konstanz, Germany & National University of Singapore.**
- **Research Interest: Magnetism & Magnetic Materials, Magnetic thin films**
- **Email id: a.patra@curaj.ac.in**



Dr. Neeraj Panwar

- **Designation: Assistant Professor**
- **Qualification: M.Sc. (IIT Roorkee). NET-JRF (CSIR) (among top 20%), GATE, Ph.D.: IIT Delhi in association with NPL New Delhi, Postdoc: University of Puerto Rico, San Juan, USA; University of Aveiro, Portugal**
- **Research Interest: Lead Free Piezoelectrics, magnetic materials, ferromagnetic semiconductor, ferroelectrics and thermo electrical materials**
- **Email id: neerajpanwar@curaj.ac.in**



Faculty Profile

Dr. Rajneesh Kumar Verma

- **Designation:** Assistant Professor
- **Qualification:** M.Sc., NET (CSIR), PhD (IIT Delhi)
- **Research Interest :** Fibre optic sensors, surface plasmons, plasmonics
- **Email id:** rkverma@curaj.ac.in



Dr. Sukhmander Singh

- **Designation:** Assistant Professor
- **Qualification:** M.Sc. (JNU) Ph.D. (IIT Delhi), JRF-NET (CSIR), GATE, JEST.
- **Research Interest:** Theory and simulation of plasma waves and instabilities in magnetized and dusty plasma, quantum plasma, inertial confinement fusion plasmas, direct energy weapons and their countermeasures, Modelling of magnetic field profiles for a Hall Thruster
- **Email id:** sukhmandersingh@curaj.ac.in



Dr. Brijesh Kumar Singh

- **Designation:** Assistant Professor
- **Qualification:** M.Sc. (D.D.U. Gorakhpur University,), JRF-NET, GATE, JEST, Ph.D. (IIT Delhi) Postdoc : Tel Aviv University, Israel
- **Research Interest :** Optical Phase Singularity, Laser Beam Shaping both in Spatial and Time Domains, Super-Oscillating Beams, Accelerating Beams, High-resolution Optical Trapping, Super-resolution Microscopy,



Faculty Profile

Dr. Rakesh Kumar

- **Designation:** Assistant Professor
- **Qualification:** Ph.D. (JNU, New Delhi), CSIR NET-JRF (among top 20%)
- **Research Interest:** Correlated quantum many-body systems, Topological phases, Triplon mean-field theory, Exact diagonalization, Quantum Monte-Carlo methods
- **Email id:** rkumar@curaj.ac.in



Dr. Sahinur Reja

- **Designation:** Assistant Professor
- **Qualification:** Ph.D, University of Cambridge, UK Post Doc: IFW Dresden, Germany; Indiana University-Bloomington, USA; University of Queensland, Australia
- **Research Interest:** Topological insulators, Frustrated Magnetism, Superconductivity using state of art numerical techniques
- **Email id:** sahinur.reja@curaj.ac.in



Dr. Yugandhar Bitla

- **Designation:** Assistant Professor
- **Qualification:** M.Sc. (KU Warangal), M.Phil. & Ph.D. (University of Hyderabad), JRF-NET, Postdoc (UoH, NCTU Taiwan, IISc Bangalore)
- **Research Interest:** Magnetism, Complex Oxides, Flexible Electronics based on van der Waals epitaxy on mica
- **Email id:** y.bitla@curaj.ac.in



Faculty Profile

Dr. Sandeep Kumar

- **Designation: UGC-Assistant Professor**
- **Qualification: M.Sc. (IIT Roorkee), JRF-NET (CSIR), Ph.D. (JNU/IUAC New Delhi). Postdoc: Laboratorio Nazionale TASC-INFN, Trieste, Italy; Lund Uni. Sweden**
- **Research Interest: Electrical and magnetic properties of nanostructures, Spin transport and Nanospintronics, Semiconductor nanowires, Modification of materials using energetic ions.**
- **Email id: sandeep.kumar@curaj.ac.in**



Non-teaching Staff

Mr. Rahul Sharma



- Designation: **Technical Assistant**
- Qualification: **M.Sc. (Computer Science), M.Sc. (Physics), B. Tech. Hon. (ECE)**
- Email id: **rahulsharmaphysics@curaj.ac.in**

Mr. Pushpender Kumar Sharma

- Designation: **Laboratory Assistant**
- Qualification: **B.Sc., B. Ed.**
- Email id: **pushpendrasharma@curaj.ac.in**



Mr. Kheema Ram



- Designation: **Laboratory Attendant**
- Qualification: **M.Sc. (Maths), B.Sc., B. Ed.**
- Email id: **kheemaramphysics@curaj.ac.in**

Mr. Navneet Agarwal

- Designation: **Data Entry Operator**
- Qualification: **M. Sc. (CS pursuing), B.C. A.**
- Email id: **navneetagarwal077@gmail.com**



Mr. Govind Sharma



- Designation: **Multi Tasking Staff**
- Qualification: **M.A., B.A., ITI**
- Email id: **gskhandalgd458@gmail.com**

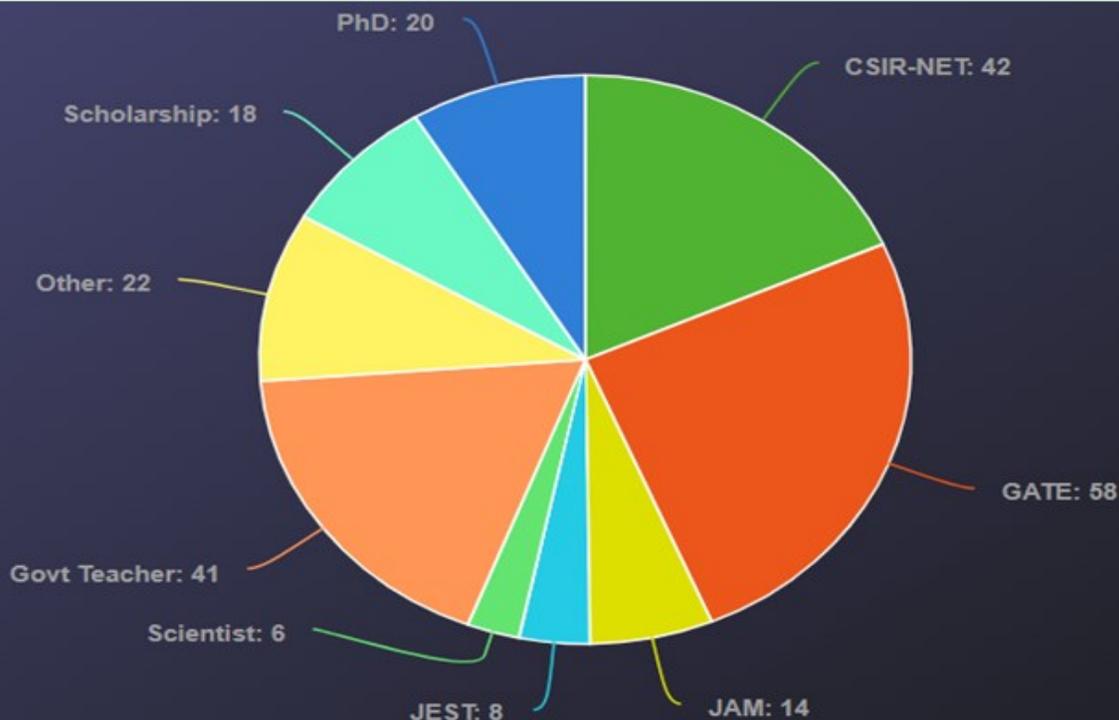
Students Performance

- Number of Ph.D. students: **25**
- Ph.D. thesis: **6 thesis defended in Open Viva-Voce & 3 submitted**
- International visit by Ph.D. students: **Sweden, Japan Synchrotron Facility & ICTP Italy**

Scientist: BARC, IPR, IUAC

PhD: Germany, IISc, IITK, JNU, DU, CURAJ, CUT, IITD

Others: Radiologist, India-Post, Food-Inspector, Patent Officer, Project Staff (JRF), PNB Bank, Teacher & Lecturer



Infrastructure

1. Classrooms :

I. One 80 Seater Classroom

II. Two 40 Seater Classrooms

2. Teaching Laboratories:

I. Integrated Physics Labs

II. Optics Lab, Physics Lab, Advanced Physics Lab

III. Computational Physics Lab

3. Research Laboratories:

I. Central Instrument Facility

II. Materials Science Labs

III. Laser, Optics and Plasma Physics Labs

IV. Non-Linear Dynamics

V. Condensed Matter Physics Labs

Well Equipped Lab With Modern Facilities

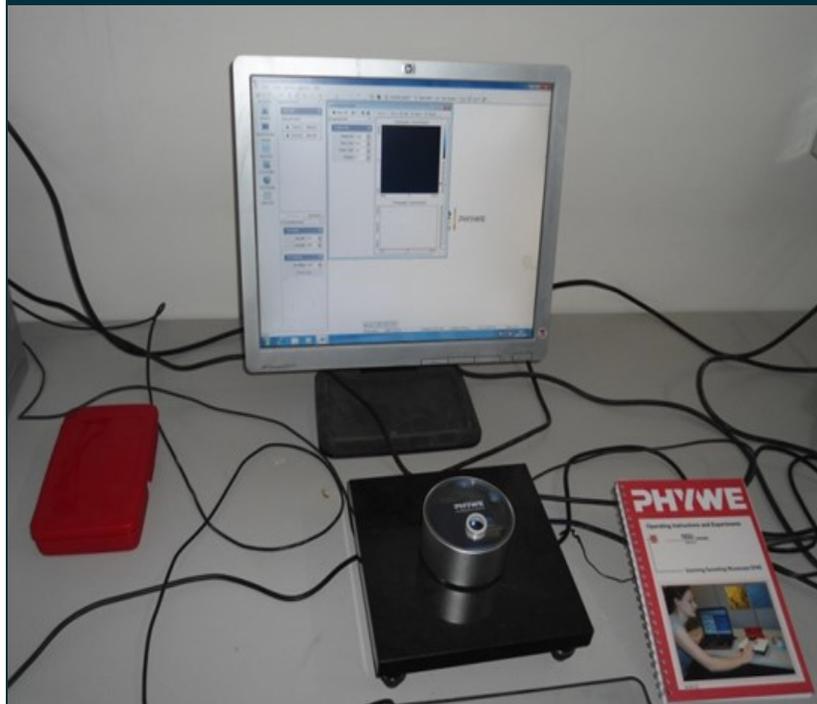


Table Top STM



e/m ratio set up

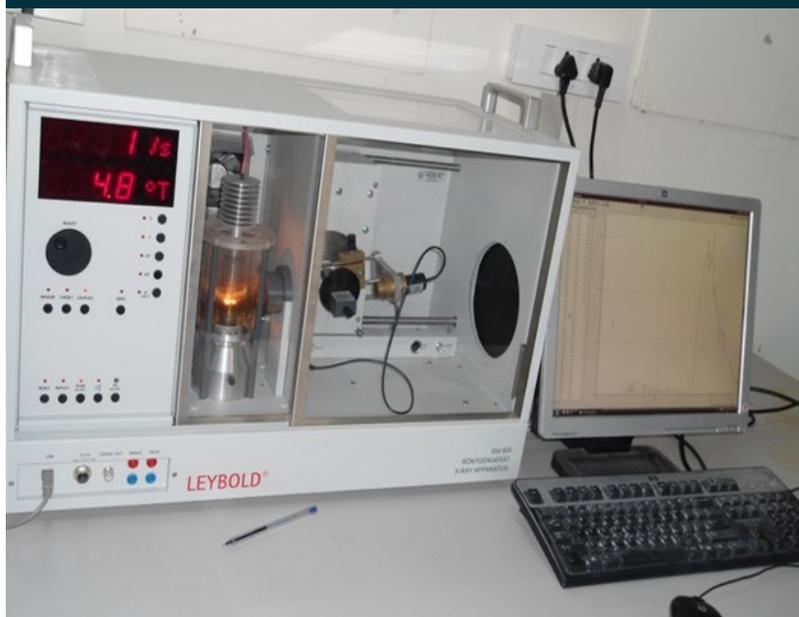


Table Top XRD



Solar Cell

Research Facility



Fume hood



Arc Melting Furnace



High Temperature furnace



E-Beam Vacuum Coating Unit



XRD



Thermal Vacuum Coating Unit

Research Facility



2400 Source Meter



PQMS



**High Performance Scientific
Computing Facility**



Gas Sensing Unit

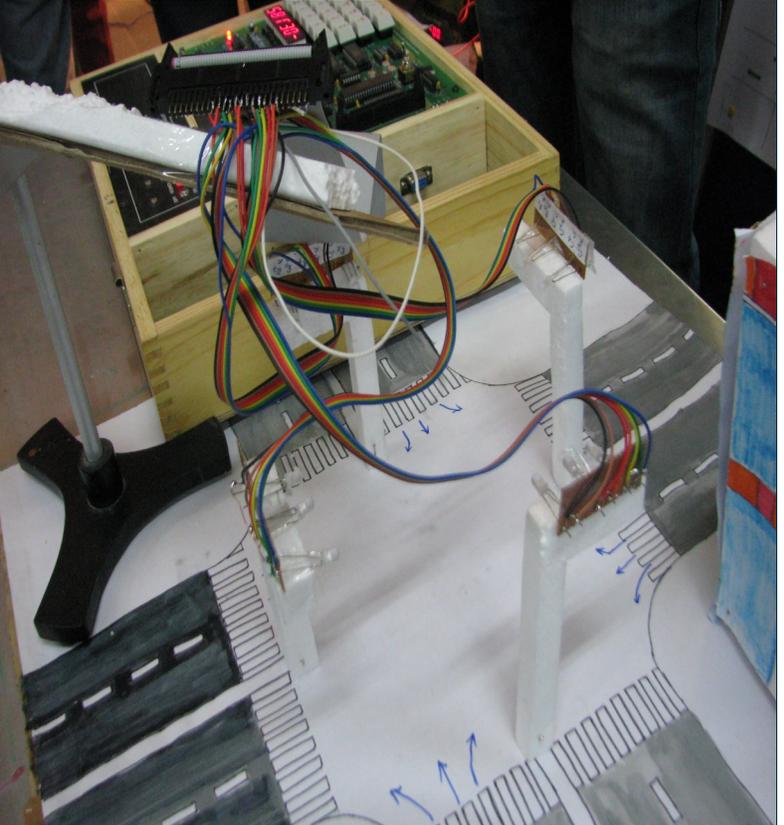
Research Facility

Low Temperature and High Magnetic Field Facility

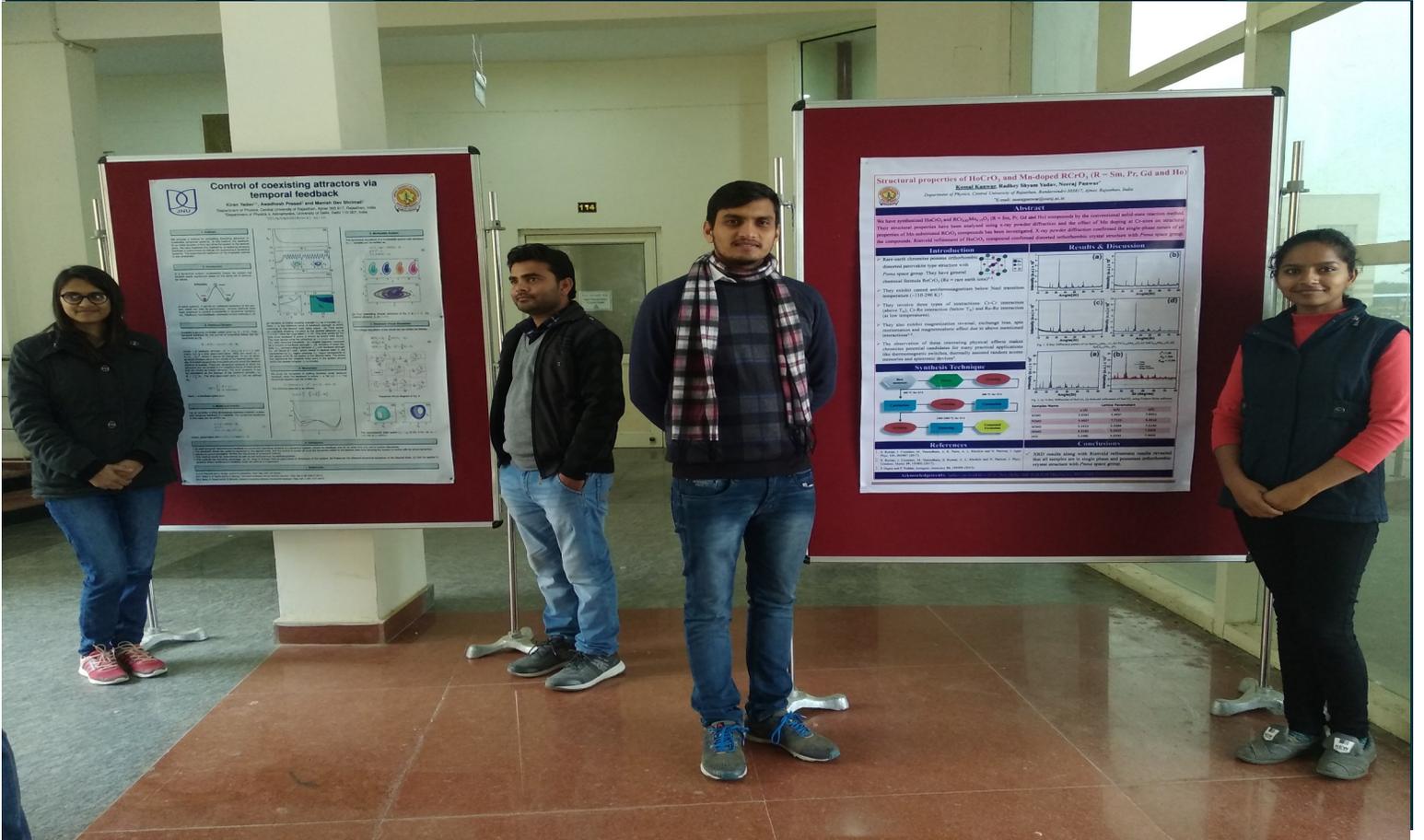


PPMS DYNACOOOL system

Gallery



Gallery



Gallery



Gallery



Anti Ragging Warning

Central University of Rajasthan adopts a zero tolerance policy towards ragging, considering the importance of providing a safe and congenial environment for all the students. Anyone found guilty of ragging and abetting ragging whether actively or passively, or being a part of a conspiracy to promote ragging, or any act of physical or mental abuse (including bullying and exclusion) targeted at another student (fresher or otherwise) on the ground of color, race, religion, caste, ethnicity gender (including transgender), sexual orientation, appearance, nationality, regional origins, linguistic identity, place of birth, residence or economic background is liable to be punished in accordance with the regulations in practice as well as under the provisions of any penal law for the time being in force.

NO RAGGING