

Welcome to the Department of Physics, IIT Delhi

Orientation: PhD Students, Semester-I, 2021-22

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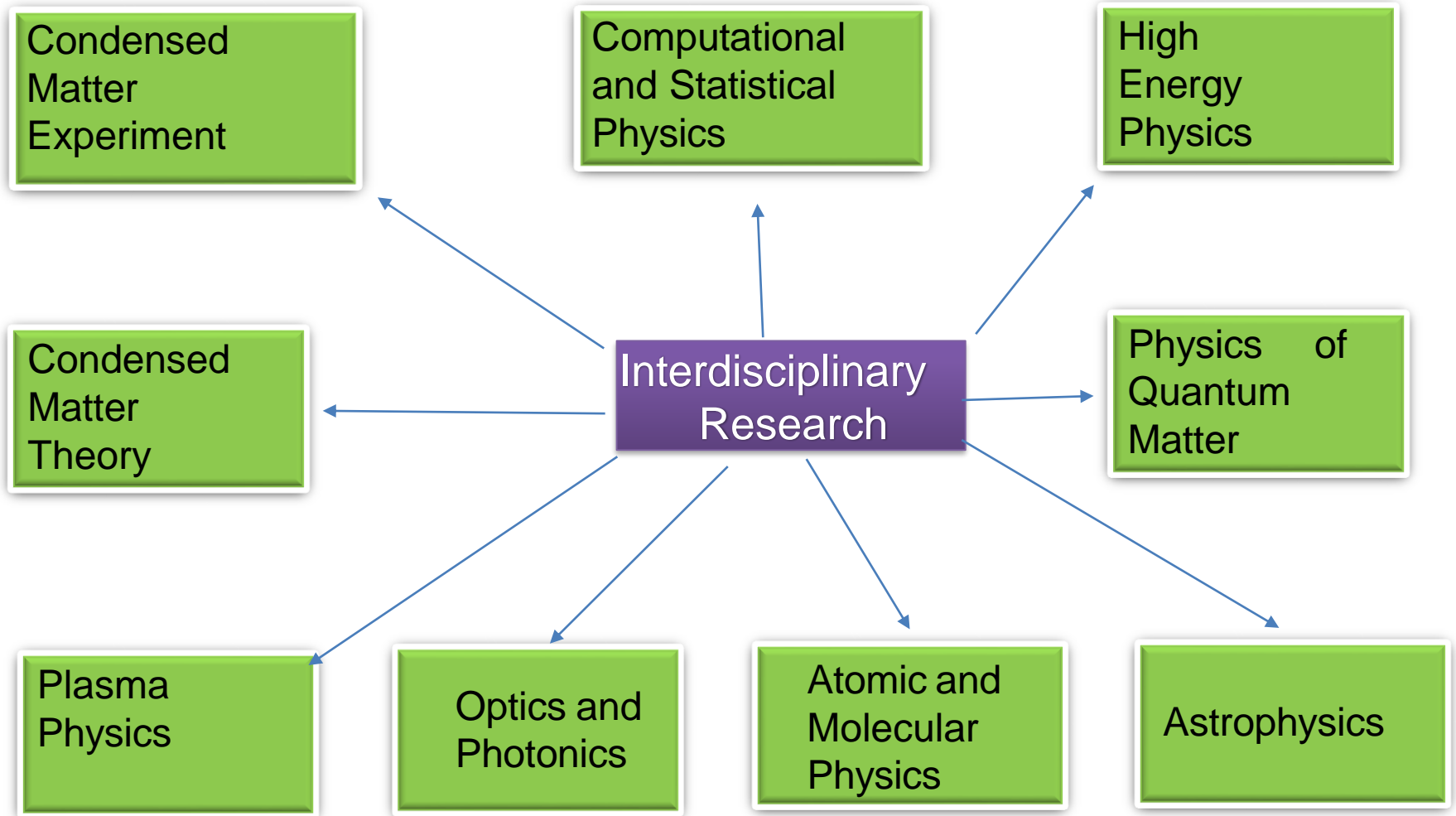
Office: MS312

PhD @ Physics Department

- PhD Program Since 1961
- First Ph.D. degree (Prof. P.K. Kaw) in 1966 and first Sponsored research project in the institute
- Largest number of Ph.D. awardees (> 500) in the entire institute
- Number of PhD scholars: ~ 250
- Number of PhD students graduate every year: ~ 25

“ this semester selected candidates: 44 (955 applications)”

Physics @ Physics Department



Facilities @ Physics Department

Department Level

- (1) **PPMS** (physical properties measurements system)
- (2) **XPS** (X-ray photoelectron spectroscopy)
- (3) **SQUID** (for highly sensitive magnetic measurements)
- (4) **UFO-Raman-PL Facility** (ultrafast optics and spectroscopic measurements, complete Raman and PL measurements)
- (5) **XRD** (material characterization for crystallinity),
- (6) **AFM** (Atomic Force Microscopy), and many more

Institute level

- (1) **NRF** (Nanoscale research facility for various types of nanomaterial synthesis, device fabrication and characterization)
- (2) **CRF** (central research facility having many advanced high end equipments for material synthesis and characterization)
- (3) **HPC** (High Performance Computing System)

CRF facilities @ Sonipat Campus)

Funds and Collaborations @ Physics Department

INDIAN FUNDING AGENCIES

- Department of Science and Technology
- University Grants Commission
- Defence Research Development Organization
- Ministry of Human Resource Development
- Board of Research in Nuclear Sciences
- Ministry of Communication and Information Technology
- All India Council for Technical Education
- DST Nanomission, and more

“active collaborations
within India and outside”

JOINT INTERNATIONAL PROJECTS

- Indo-German
- Indo-Swedish
- Indo-UK
- Indo-French
- Indo-USA
- Indo-Norway
- Indo-Japan
- Indo-Taiwan

Grants and Awards

- ❑ Rs. 20000 *p.a.* contingency grant for institute fellow for attending conferences/meeting within India
- ❑ RSTA (Research Scholar Travel Award) of Rs 1.3 Lakh (for everyone) for travelling Aboard for conferences/meetings once during PhD
- ❑ RETA (Research Excellence Travel Award) of Rs. 1.5 Lakh, if you do well in early years of PhD.
- ❑ 15% of PhD theses every year are eligible for “Excellence Thesis Award”
- ❑ Provision for six months leave to travel Abroad for collaborative work.
- ❑ PMRF fellowship
- ❑ After PhD thesis defense you are eligible for an early-doc fellowship for six months.

Starting Your Fellowship

1. The candidates with Institute Fellowships have to send their joining letter to department. You can send this via email to on hodphysics@admin.iitd.ac.in.

1. The candidates with CSIR/UGC-NET-JRF fellowships, in addition to sending the joining letter to the department, has to fill a form (contact PG section at drpgsr@admin.iitd.ac.in for that) and get it approved by thesis supervisor and submit to CSIR/UGC office. Your fellowship will start once it is approved by the corresponding agency.

2. Candidates with DST-Inspire fellowships, in addition to sending the joining letter to the department, has to register to the DST-Inspire portal and submit the following documents.
 - a) Copy of the Offer letter
 - b) An Endorsement letter issued by the PG section
 - c) Research Proposal
 - d) CV of the thesis supervisor

You can contact PG section for more details at drpgsr@admin.iitd.ac.in

Pre-PhD Course Work

Each student will be required to take course work as prescribed by the supervisor(s) and approved by the DRC.

Qualifying degree	Minimum credits	Core courses (compulsory)	Electives Courses	Audit course (compulsory)
M.Sc./ B. Tech. or equivalent	12	01	03 PYL7xx/PYL8xx Level Courses	Research Writing (HSL800)
M. Tech. or equivalent	6	01	01 PYL7xx/PYL8xx Level Courses	Research Writing (HSL800)

- **Core Courses:**
 1. PYL800: Numerical and computational methods in research (3 credits)
 2. PYL707: Characterization techniques of materials (3 credits)
- **Electives: Courses of Study @ <http://old.iitd.ac.in/content/curriculum-info>**
- **You can also take any course from other department with the consent of your thesis supervisor/DRC**

List of PYL7xx Courses This Semester

1. PHYSICAL FOUNDATIONS OF MATERI	PYL701
2. PHYSICS OF SEMICONDUCTOR DEVIC	PYL702
3. ELECTRONIC PROPERTIES OF MATER	PYL703
4. CHARACTERISATION TEC. FOR MAT.	PYL707
5. VACUUM SCIENCE AND CRYOGENICS	PYL723
6. ENERGY MATERIALS AND DEVICES	PYL727
7. NANO PROBE TECHNIQUES	PYL729
8. COMP. TE. FOR SOLID STATE MAT.	PYL739
9. ADVAN. CONDENSED MATTER THEORY	PYL740
10. FIELD THEORY & QUANTUM ELECTR.	PYL741
11. NON-EQUILIBRIUM STATISTICAL ME	PYL746
12. NON-LINEAR OPTICS	PYL747
13. QUANTUM INFORMATION & COMPUTA.	PYL749
14. OPTICAL SOURCES, PHOTOMETRY AN	PYL751
15. OPTICAL SYSTEMS DESIGN	PYL753
16. BASIC OPTICS AND OPTICAL INSTR	PYL755
17. COMPUTATIONAL OPTICAL IMAGING	PYL759
18. FIBER OPTICS	PYL791
19. PHOTONIC DEVICES	PYL793
20. OPTICS AND LASERS	PYL795
21. NUM. & COMP. METH. IN RESEARCH	PYL800
22. FIBER OPTIC COMPONENTS AND DEVICES	PYL891

Important Instructions Related to Your Course Work

1. You must have received your entry number and IIT Delhi Kerberos details for your email and registration.
2. You must register for these courses at <https://eacademics.iitd.ac.in/sportal> before 17 July, 2021.
3. Please discuss with your thesis supervisor to choose courses from electives
4. Course work is expected to be completed within 2 semesters (3 Sem. for P.T.)
5. **Minimum CGPA required to pass the course work is 7.5**
6. Please make sure that you all familiarize yourself with moodle <https://moodle.iitd.ac.in>
7. Please get in touch (via email) with course coordinators to get various details related to classes, course material, slides details, scheme of evaluation, etc.

For any difficulty in registering the courses, please write to eacadhelp@iitd.ac.in

Important Guidelines and Instructions for Your PhD

1. SRC Formation (within 3-4 months)

- Student Research Committee (SRC) is a 4 faculty members which monitors the progress of the student throughout the PhD programme.
- Two experts from the department, one expert from outside the department, and the thesis supervisor.

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2. Comprehensive Exam (within 18 months, 24 months for part-time students)

- Every PhD student needs to write a written exam and after passing that he/she has to give an oral presentation before SRC.
- The student would be declared passed after passing the oral test and securing minimum 65% marks in total..
- The student has to present a sketch of tentative research plan that must be approved by SRC.

Important Guidelines and Instructions for Your PhD

3. Renewal of Registration

- Every student will be required to renew the registration every semester till the submission of the thesis.
- The renewal of registration every semester shall be subject to the completion of specified number of credits and/or satisfactory progress in the research work as recommended by DRC
- Every student has to give a progress oral presentation before the SRC at the end of every semester, after the comprehensive exam.

4. Teaching Assistantship

Starting from second semester each PhD student has some specific hours of TA duty to help MSc/Btech students

Thank You!