TWO-DAYS HANDS-ON
WORKSHOP ON

POWDER X-RAY DIFFRACTION

Fundamentals • Training • Software analysis

1-2 December 2026

Lecture Hall Complex, IIT Delhi

Invited Speakers



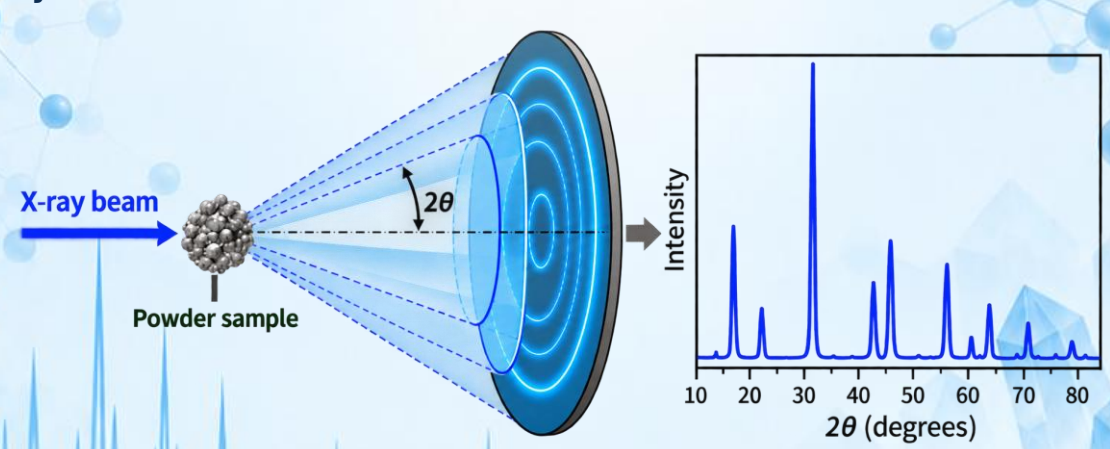
Dr. Soorya N. Kabekkodu



Prof. T. N. Guru Row



Prof. Arun M. Umarji



Organized by:

Department of Chemistry
Indian Institute of Technology Delhi
New Delhi-110016

REGISTER ONLINE →

Scan the QR code to register

About The Workshop

Powder X-ray Diffraction for Materials Characterization

This interactive workshop combines expert lectures, instrument demonstrations, and hands-on training to bridge fundamental PXRD principles with advanced applications in materials characterization. Participants will gain practical experience in diffraction data analysis, phase identification, quantitative phase analysis, and structure refinement using the ICDD PDF-5 database and MDI JADE Pro software. The workshop is designed for postgraduate students, research scholars, faculty members, and industry professionals from Materials Science, Physics, Chemistry, Pharmaceutical Sciences, Nanotechnology, Metallurgy, Geology, and related disciplines.

Technical Programme

DAY 1 | PDF-5+ & Sieve+

Fundamentals of PXRD, followed by hands-on training using ICDD PDF-5+ and Sieve+ for database searching and data mining. Phase identification methods, including quantitative and semi-quantitative phase analysis.

DAY 2 | JADE Pro

Data collection strategies and profile fitting, followed by hands-on training using MDI JADE® Pro for whole-pattern fitting, Rietveld refinement, and quantitative phase analysis.

Hands-on Access & Participant Requirements

- Access to ICDD PDF-5+, Sieve+ and MDI JADE Pro will be available through a remote desktop server. Participants should bring a laptop with wireless internet access and a current web browser (Chrome, Edge or Firefox).
- Mac users should have a Windows emulator installed.

Invited Speakers



Dr. Soorya N. Kabekkodu

Editor-in-Chief, ICDD, USA



Prof. T. N. Guru Row

Emeritus Professor, SSCU,
IISc Bengaluru



Prof. Arun M. Umarji

Emeritus Professor, MRC
IISc Bengaluru

Organizers

Prof. Sajesh P. Thomas
Associate Professor
Department of Chemistry, IIT Delhi

Prof. Dinabandhu Das
School of Physical Sciences, JNU,
New Delhi

Registration & Participant Information

REGISTRATION IS OPEN

Apply through the online registration form

Registration details

Registration deadline	**20 November 2026**

Limited to 60 participants

Participants should carry their own laptop with full charge for hands-on training sessions

Lunch, tea and workshop kit will be provided to all participants

Registration Fees details

Category	Fee (INR)
Masters/PhD students	Rs. 2,000/-
Faculty	Rs. 4,000/-
Industry	Rs. 6,000/-

Accommodation

Limited hostel accommodation may be available on a paid basis for students, subject to availability.
Faculty participants are advised to arrange their own accommodation at nearby hotels, such as Hotel Shyama International, near IIT Delhi.

REGISTER NOW →

Note:

- Refreshments and lunch will be provided on 1-2 December 2026.
- Limited on-campus accommodation may be available for students, subject to availability. Please contact us in advance.
- Participants who are not allotted campus accommodation are requested to make their own arrangements.
- Attendance in all sessions is mandatory to be eligible for the participation certificate.
- Participants must carry a valid ID card for gate entry and verification.

For queries, contact:
Email ID: pxrd.iitd@gmail.com
Ph No. : 8945904325

Workshop Programme

Powder X-ray Diffraction (PXRD) | Two-Day hands-on workshop

DAY 1 — 01 December 2026

Time	Programme
09:30 – 10:00 AM	Inaugural Function
10:00 – 10:30 AM	**High Tea**
10:30 – 11:00 AM	Powder X-ray Diffraction Method and Application
11:00 – 12:30 PM	Diffraction Geometry, Systematic Angular Errors and Calibration Procedures, Sample Preparation
12:30 – 01:00 PM	Setting up PDF-5+ and JADEPro access
01:00 – 02:00 PM	**Lunch Break**
02:00 – 03:30 PM	Hands-on Session: Introduction to Search/Match Procedures with PDF-5/Sieve+, PDF-5+ Database and Features Overview, Data Mining
03:30 – 04:00 PM	**Tea Break**
04:00 – 05:30 PM	Phase Identification Method; Quantitative and Semi-quantitative Phase Analysis, Advanced Phase Identification (with Amorphous Component, Trace Phases), Additional Problem Solving, Q&A

DAY 2 — 02 December 2026

Time	Programme
09:00 – 09:30 AM	Data collection strategies
09:30 – 11:00 AM	Indexing, Introduction to profile functions, Fitting and quantitative phase analysis using Rietveld method
11:00 – 11:30 AM	**Tea Break**
11:30 – 01:00 PM	JADEPro hands-on sessions; JADEPro features overview, Angular Calibration (Instrument Profile Curve, IPC), Pattern indexing Using JADE
01:00 – 02:00 PM	**Lunch Break**
02:00 – 03:30 PM	JADEPro hands-on sessions; Whole Pattern Fitting (WPF) and Rietveld Refinement, Phase Identification and Quantitative Phase Analysis (Rietveld), Crystallinity Measurement, Crystallite size and Micro-strain Analysis
03:30 – 04:00 PM	Q&A, Concluding Remarks and Feedback From Participants followed by High Tea

REGISTER NOW →

Google Form Link:
https://forms.gle/oenaz7YPWQs6s1bd8