

1st 4TU.HTM Neutron Diffraction Workshop 2025

TU Delft Reactor Institute, 17-20 June 2025

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TU Delft

Reactor Institute

This workshop aims to foster and train the Dutch materials research community in the application of neutron diffraction. The workshop includes education and hands-on training, providing comprehensive knowledge on neutron scattering and diffraction, from fundamental principles to advanced applications.

a. Lectures

- i. Introductory:** About the neutron sources and the RID facility
- ii. Basics of Neutron Scattering:** Introduction to neutron scattering techniques, theory, and instrumentation.
- iii. Powder Diffraction:** Principles, applications, and analysis methods in powder diffraction studies.
- iv. Pair Distribution Function (PDF) techniques:** Investigating disordered, amorphous and Liquid materials using diffraction techniques and extracting structural information via PDF.
- v. Magnetic Neutron Diffraction:** Overview of magnetic neutron diffraction and their relevance to magnetic studies.
- vi. Rietveld Refinement:** Introduction to Rietveld refinement, applications in crystallographic analysis, and best practices.
- vii. Diffraction applications:** Covering magnetism, Li ion batteries, magnetocaloric materials, high entropy alloys, local structure examples etc.
- viii. How to write a good proposal**

b. Practical and Hands-On Training

- i. X-Ray Diffraction (XRD):** Hands-on training in data collection and interpretation using XRD.
- ii. Neutron Diffraction:** Practical experience in neutron diffraction techniques with real and simulated data.

iii. Neutrons as a tool: For a better understanding of neutrons, FISH and Test beamline.

iv. Tour of the facility: Students are given tour of the reactor and all the instruments in reactor and experimental hall.

c. Training in Data Fitting and Analysis: Interactive sessions on software tools and methods for fitting and analyzing diffraction data.

d. Interactive Sessions:

i. Short Presentations (3 mins, approx.): Participants present their research topics or ideas for discussion.

ii. Poster Session: Dedicated session for students to showcase their work, network, and receive feedback for collaborative opportunities.

Further information

All information can be found on the websites:

4TU.HTM: <https://www.4tu.nl/htm/education/diffraction-workshop/>

RID: [4TU.HTM Diffraction Workshop 2025](#)

For further question, feel free to email us at useroffice-rid@tudelft.nl

Local Organizing Team

Indu Dhiman

Robert Dankelman

Jeroen Plomp

Niels van Dijk

Michel Thijs

Nicole Banga

Femke Werkman

Ilse van der Kraaij-Quick

Time	Day 1 17/6	Time	Day 2 18/6	Time	Day 3 19/6	Time	Day 4 20/6
0830-0900	Security Clearance & Badges						
0900-1000	Welcome session: Wim Koppers Introductory lecture: Jeroen Plomp	0900-1030	Short Presentations	0900-1000	Rietveld Refinement	0900-1100	Diffraction applications: Magnetism, Li ion batteries, MCE materials, High entropy alloys
1000-1100	Basics of Neutron scattering: Wim Bouwman	1030-1130	Pair Distribution Function techniques	1000-1200	Data analysis	1100-1130	How to write a good proposal
1100-1200	Powder Diffraction	1130-1230	Magnetic Neutron Diffraction: Graeme Blake	1200-1330	Lunch	1130-1200	Closing session
1200-1330	Lunch	1230-1330	Lunch	1400-1700	Practical training	1200-1330	Lunch
1400-1700	Practical training	1400-1700	Practical training				
		1700-1930	BBQ/Poster session	1700-1930	Gathering in the bar		

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