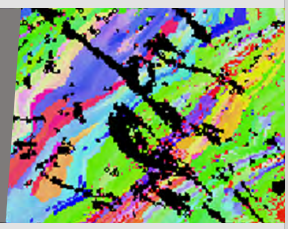
ASSOCIAZIONE ITALIANA DI METALLURGIA

ELECTRON BACKSCATTER DIFFRACTION
THE DATA BENEATH "COLOURED MAPS"

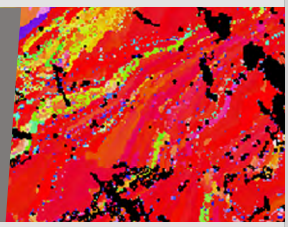
Quantitative measurements on metals and beyond



Lecture by John Wheeler
University of Liverpool

Lecco · Italy

28 May 2026



EBSD is generally perceived as "coloured" representation of the microstructure of metals and materials in term of grain orientations. Such coloured maps cab be seen simply as qualitative images but in fact contain much quantitative information.

Indeed EBSD now routinely provides huge datasets of high quality and precision, and this highlights the need to understand how to analyse these quantitatively.

This lecture will explain relevant methods and demystify the numerous acronyms we encounter. Starting from the foundation of this technique, examples and theory will be presented that suggest the application of EBSD to crystalline materials, not only metals.

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JOHN WHEELER

John Wheeler is the George Herdman Professor of Geology at the University of Liverpool and has a long-standing interest in EBSD. He has a background in researching microstructural and microchemical evolution of rocks and, building on this with colleagues, in the 1990s Liverpool was one of the first places to popularise EBSD in geoscience. He continues to develop quantitative analysis methods and implementing them in software, notably a method to analyse intracrystalline distortion. His work extends to ice and metals and is of general applicability to crystalline materials. His two most recent EBSD papers are on olivine (a mineral) and, as co-author, on GaN (a semiconductor).

He has other interests spanning geoscience and materials science, including the feedbacks between stresses and phase transformations. He is interested in deformation of crystalline materials, especially diffusion creep for which he has designed grain scale models, and in reactive fluid flow in porous media. His geological research has included studying eclogites (rocks which have undergone solid state phase transformations up to 3 GPa pressure, around 100 km depth) in the Alps of Valle d'Aosta and Piemonte.

PROGRAMME

8:45	Registration
9:00	**Welcome and Introduction** Paola Bassani - CNR ICMATE, Lecco
9:15	**The significance of crystal orientation data and its representation, mindful of crystal symmetry**
10:45	Break
11:00	**Misorientation and distortion: what's the difference? How we can calculate it and represent it?**
12:30	Conclusions

REGISTER

Registrations will close on May 22, 2026 or as soon as the maximum number of participants will be reached.

Scan the QR code and fill in the online form.

If you can't scan it, copy and paste this URL into your browser:
https://www.aimnet.it/manifestazione.php?id=978&idc=1

GENERAL INFORMATION

Location

The Course will be held at Polo Territoriale di Lecco del Politecnico di Milano (aula B.05 – edificio 9), Via Previati 1/c [MAPS].

Participation

Participation in the workshop is free of charge, provided the registration form is submitted by the deadline: May 22, 2026.

Language

The workshop will be held in English.

Insurance

The Organising Secretariat cannot assume any responsibility for personal accident, loss or damage to the private property of participants and accompanying persons, which may either occur during or arise from the workshop.
Participants should therefore take whatever steps they consider necessary as regards insurance.

Organising secretariat

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