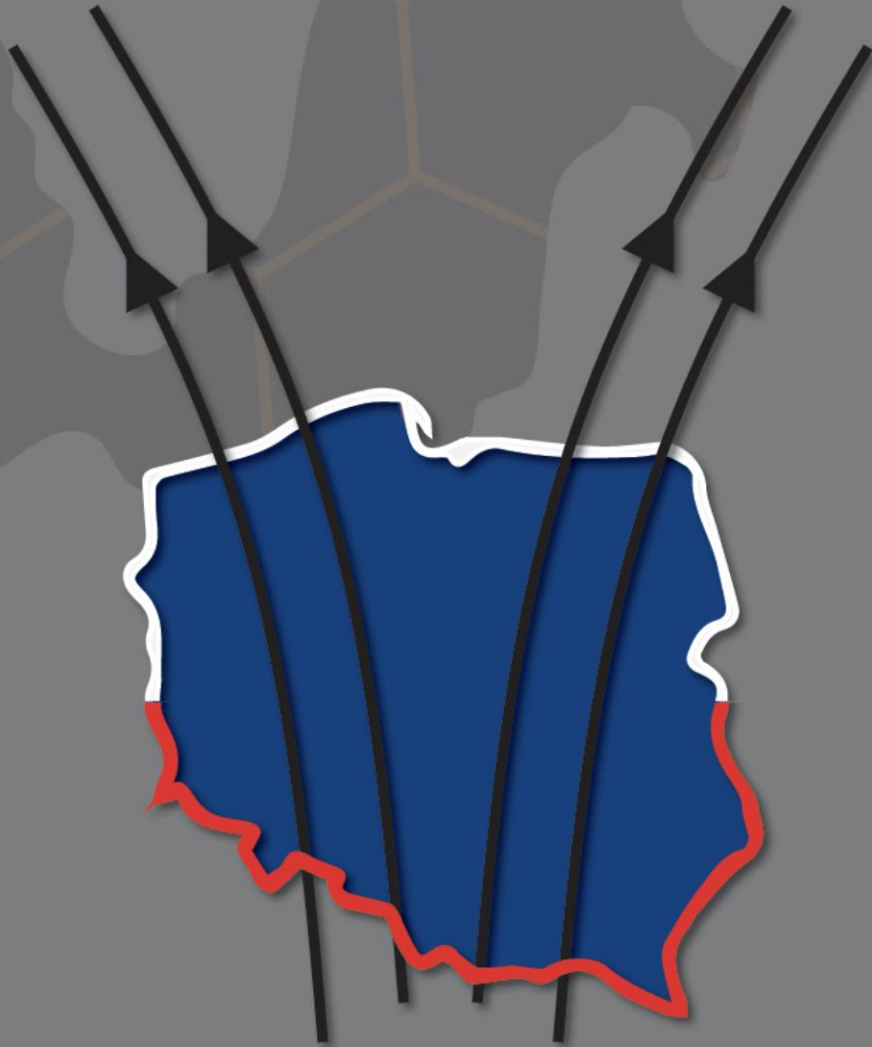


MAGNETIC FIELDS IN MATERIALS RESEARCH II

FACULTY OF PHYSICS | UNIVERSITY OF WARSAW

JUNE 29, 2026



Ministry of Science and Higher Education
Republic of Poland

Co-financed by the Minister of Science's program 2025/WK/01

EMFL-Poland a short introduction



European Magnetic Field Laboratory- AISBL

(Association Internationale Sans But Lucratif - international non-profit association under the Belgian law)



High Field Magnet Laboratory (HFML)
Nijmegen, NL



Hochfeld-Magnetlabor Dresden, HLD
Dresden-Rossendorf, DE

Laboratoire National des Champs
Magnétiques (LNCMI), Toulouse, FR



Laboratoire National des Champs
Magnétiques (LNCMI), Grenoble, FR

ESFRI Landmark Infrastructure

EMFL ordinary members:

- **United Kingdom** since December 2015,
- **The Institute of Research into the Fundamental Laws** of the Universe, Commissariat a l'Energie Atomique et aux Energies Alternatives (**CEA**), France since December 2019,
- **University of Salento** since February 2024, the user community in Italy.
- **University of Warsaw** from January 2019 to December 2023, and from January 2025 to December 2029, the user community in Poland.

University of Warsaw

the leader of the EMFL-Poland Consortium



Politechnika Wrocławska

Wydział Podstawowych Problemów Techniki



EMFL-Poland

Technical Workpackages:

- 1) 20 kEUR +250 kEUR per year



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Technical Workpackages:

- 1) 20 kEUR +250 kEUR per year
- 2) Support of experiments selected by the EMFL

Selection Committee under dual access
in the Regional Laboratory in Warsaw



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Dual access – Example of infrastructure available

1. Optical spectroscopy in magnetic field

Available superconducting magnets: 16 T magnet in Faraday configuration, 10 T magnet in Faraday or Voigt configuration, 3T two-coil vector-rotate magnet allowing smooth transition from Faraday to Voigt geometry or in-plane rotation of the magnetic field in the Voigt geometry.

Available techniques: Reflectivity and transmission, Raman scattering, Photoluminescence (PL, PLE) with variety of lasers including 700-860 nm (tunable). Typical signal detection using Si CCD camera (400-1000 nm). InGaAs detector (up to 1700 nm) available upon request. Time-resolved PL.

2. Electric transport in magnetic field

Available superconducting magnets: Oxford Instruments cryostat with a variable temperature insert (1.5 K – 300 K) and magnetic field of (12 T), dilution fridge unit Oxford Instruments Kelvinox with temperature range (20 mK – 1 K) and magnetic field of 16 T.

In both setups probes with rotators may be used, enabling variation of sample plane with respect to magnetic field.

Available techniques: Hall effect for metallic to semiconducting samples, low current measurements (down to pA) may be performed.

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- 2) Support of experiments selected by the EMFL
Selection Committee under dual access
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- 3) Dissemination and communication
support of dissemination events
(eg EMFL Users Meeting in 2026)



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EMFL Users Meeting - 2019

Yearly User Meetings open to all users of the EMFL and regional partner facilities.

The meetings are an important platform for dialogue between the staff and management of the EMFL facilities and their users.

Important recent developments in capacity, technology and expertise will be presented at these meetings, along with scientific achievements, as will future plans of the facilities and administrative aspects.



EMFL Users Meeting - 2026

Tomorrow!