

COMET CENTRE

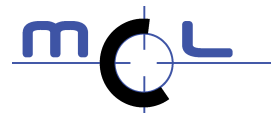
MATERIALS CENTER LEOBEN FORSCHUNG GMBH

RESEARCH PROGRAMME: IMI – INTEGRATED MATERIALS INTELLIGENCE

Main location: Leoben (Styria)

Other locations: none

Thematic area: Material & Manufacturing; Digitalisation & IT



Thematic focuses

The centre's overall focus is on accelerating materials-related innovation to ensure a sustainable, competitive and strategically sovereign future for Austria and Europe. The basis for this is the AI-driven integration of theoretical fundamentals, validated physical models and experimental methods into tailor-made material acceleration platforms as well as into digital engineering environments, enabling a holistic, integrated approach to material, process and product design.

The research programme is structured into three areas with the following particular key topics:

- Development of advanced, circular materials
- Development of sustainable material manufacturing and processing methods
- Application of modern materials in the mobility, microelectronics, energy technology and security sectors

Planned realisation and outcomes

- Radically new materials with outstanding properties and functionalities
- Substitution of critical raw materials and circular economy-based materials
- Sustainable and circular economy-compatible manufacturing processes and process chains with reduced resource consumption and minimal greenhouse gas emissions
- Product improvement through the use of enhanced or multifunctional materials
- New, accelerated experimental characterisation and testing methods for the intelligent and detailed determination of process-microstructure-property relationships
- New integrated, interoperable and multi-scale simulation methods for high-throughput calculations
- Development of a user-friendly, AI-driven platform (ALPmat) for integrated material, process and product development, characterised by the consistent use of machine learning, generative AI and automated, agent-based AI workflows

We offer our services in the business areas of research, development & optimization and services.

History of establishment

1999: Funding as competence center in the frame of the Kplus Competence Center Program

2008 till 2017: K2 Center for „Materials, Process and Product Engineering“,

2018 till 2026: K2 Center for „Integrated Computational Materials-, Process and Product Engineering“

2027 till 2034: COMET Center for „Integrated Materials Intelligence“.

COMET FACTSHEET

Selected company partners (max. 10):

1. AMAG rolling GmbH
2. ams-OSRAM AG
3. AT & S Austria Technologie & Systemtechnik Aktiengesellschaft
4. Berndorf Band GmbH
5. CERATIZIT Austria GmbH
6. Infineon Technologies Austria AG
7. Siemens Mobility Austria GmbH
8. voestalpine BÖHLER Edelstahl GmbH & Co KG
9. voestalpine Railway Systems GmbH
10. voestalpine Stahl GmbH

Selected scientific partners (max. 5):

1. Montanuniversität Leoben
2. Austrian Academy of Sciences
3. TU Wien
4. TU Graz
5. interdisciplinary transformation university austria

Selected international¹ partners (max. 5):

1. Andritz Metals France S.A.S. (France)
2. Hilti Corporation (Lichtenstein)
3. Sandvik AB (Sweden)
4. International Zinc Association (USA)
5. The University of British Columbia (Canada)

Duration: 01.01.2027 - 31.12.2034 (4+4 years)

Staff employed at the Centre: 108 FTE, thereof 85 scientists

Management: Dr. Werner Ecker, General Manager

Contact: Materials Center Leoben Forschung GmbH
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Status 03.07.2026

The COMET Centre is funded within COMET – Competence Centers for Excellent Technologies – by BMIMI, BMWET as well as the co-financing federal provinces Styria, Upper Austria and Tyrol. The COMET programme is managed by FFG. www.ffg.at/comet

¹ Partners with headquarters outside Austria