

COMET CENTRE

POLYMER COMPETENCE CENTER LEOBEN GMBH

RESEARCH PROGRAMME: PCCL-K1 – CENTRE FOR CIRCULARITY, FUNCTIONALITY AND DIGITALIZATION IN POLYMER TECHNOLOGIES

Main location: Leoben (Styria)

Other locations: Graz (Styria)

Thematic area: Material & Production



Thematic focuses

- recycling and re-using of polymers
- increasing energy efficiency and material savings in production processes
- enhancing the lifespans and durability of polymer products
- applying bio-based polymers in technical products
- using data driven and artificial intelligence (AI) aided methods as well as modelling and simulation to increase the productivity of the polymer-related industry

Planned realisation and outcomes

Based on PCCL-K1's competencies acquired over the past years, its scientific work in the funding period 2025 - 2028 aims at excellence in selected fields, such as dynamic polymer networks, circular use of polyolefins in pipe applications, recycling of elastomers, spectroscopical methods in sorting of post-consumer waste, reliability and long-term stability of functional thermosets, prediction of the performance and lifetime characteristics of polymers under extreme conditions, virtual product development and assessment enabled by AI (machine learning) and reliable material models and multi-physics simulation tools. Examples of the envisaged technology development include new polymeric materials with designed properties (e.g., reshapable and weldable thermosets, frontal polymerisable resins with fail-safe properties), advanced process technologies (e.g., thermo-mechanical recycling of elastomers, advanced sorting strategy for mechanical recycling of post-consumer polymer waste), as well as digital material solutions for printed circuit boards and AI based fast-teachable methods for enhanced quality control.

History of establishment

Under the leadership of the Institutes of Polymer Technology at the Montanuniversität Leoben, an application for the establishment of a Kplus competence centre in the field of polymer engineering and science was submitted and approved in 2001. In 2002, the supporting entity Polymer Competence Center Leoben GmbH, based in Leoben, was founded and has since been developed into a polymer research centre with international visibility. Since 2010, the PCCL has been continued as a K1 centre as part of the FFG's COMET programme.

COMET FACTSHEET

Selected company partners (max. 10):

1. AT & S Austria Technologie & Systemtechnik AG
2. Pankl Racing Systems AG
3. SKF Sealing Solutions Austria GmbH
4. Borealis AG
5. MAM Health & Innovation GmbH
6. Isolvolta AG
7. Julius Blum GmbH
8. Semperit Technische Produkte GmbH
9. Liebherr-Hausgeräte Lienz GmbH
10. Baunit Beteiligungen GmbH

Selected scientific partners (max. 5):

1. Montanuniversität Leoben
2. Technical University of Graz
3. AIT Austrian Institute of Technology GmbH
4. Silicon Austria Labs GmbH
5. University of Twente

Selected international¹ partners (max. 5):

1. Brose Fahrzeugteile GmbH & CoKG Bamberg
2. Wacker Chemie AG
3. Neue Materialien Bayreuth GmbH
4. CIMNE - International Center for Numerical Methods in Engineering
5. Technical University of Munich

Duration: 01.01.2025 - 31.12.2028 (4 years)
Staff employed at the Centre: 72,10 FTE, thereof 62,20 scientists

Management: Dr. Elisabeth Ladstätter, CEO

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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, Vorarlberg. The COMET programme is managed by FFG. www.ffg.at/comet

¹ Partners with headquarters outside Austria