

## XTribology

Excellence Center of Tribology

<b>Programm / Ausschreibung</b>	COMET, K2, 2. Ausschreibung 2014 - 2. Förderperiode	<b>Status</b>	abgeschlossen
<b>Projektstart</b>	01.04.2015	<b>Projektende</b>	31.03.2020
<b>Zeitraum</b>	2015 - 2020	<b>Projektlaufzeit</b>	60 Monate
<b>Keywords</b>	Tribologie, Schmierstoff, Simulation, Oberflächentechnologie, Tribodiagnostics		

### Projektbeschreibung

The COMET K2 Centre of Excellence for Tribology (XTribology) has been established and well developed during the first funding period as planned. Close collaborations with a number of national and international scientific partners, selected in view of thematic synergies, are important cornerstones. Scientific knowledge, especially from physics, chemistry, material science, mechanics, electronics and information technology, is integrated in our research work based on our holistic understanding of the fundamentals of tribology as a highly interdisciplinary field.

Project topics and goals as well as the research activity have been concentrated in the four areas: Lubricants and Surface Interactions (Area 1), Wear Processes (Area 2), Integrated Tribodiagnostics and -design (Area 3) and Multiscale Computational Tribology (Area 4). Fortunately, the development of Area 2 took place faster than expected. Due to the fact that a considerable part of the scientific work in Area 4, viz. simulation and modelling, has been integrated as work packages into projects of other Research Areas to optimise the holistic performance of Xtribology, one could erroneously estimate Area 4 to have developed slower.

The Xtribology funding period was started in April 2010 to harmonise the period with the Centre's business year. The monetary public funding of Xtribology is 50 % of the budget.

The approved total financial volume will not be reached in the 5 year period due to several reasons. Based on the turnover during the first four years, a total Xtribology budget of approx. € 47 million is expected.

The Centre - as of 30th June 2014 - has 142 employees (approx. 115 FTE; which corresponds to the lower Xtribology turnover), with approx. 30 % of the staff members from an international background. In January 2012, the Centre doubled the rented office and laboratory space at the "Research and Technology Center Wiener Neustadt" to approx. 4000 square metres. Important equipment purchases to perform the research projects were realised within the Xtribology budget as well as within the non-K budget during the last four years. Selected examples are a high-performance computer cluster (which has probably one of the highest capacities in the region), a robotised high-power direct diode laser-coating system, a high-temperature sheet metal forming test rig, as well as a coupled advanced mass spectrometry-gas chromatography system. This Centre is supported by the provinces of Niederösterreich, Vorarlberg and Wien, as well as by a high number of partners who are active in the research projects. The participation of new national and international company partners as well many long-term partnerships within Xtribology show the importance of tribology for the economy and the success of the Centre.

The Centre's organisation and management show long-term stability, with only minor changes and low fluctuation. All the XTribology boards operated consensually. Our achievements indicate that the XTribology target values will be reached as planned by the end of the 1st funding period. The collaboration with renowned international partners and the research results have led to an appreciable increase in the internationalisation and international visibility. Thus, the Centre helps strengthen Austria and Europe as a place of research, development and production.

## **Projektkoordinator**

- AC2T research GmbH

## **Projektpartner**

- Tampere University of Technology
- Lenzing Technik GmbH
- EBNER Industrieofenbau GmbH
- Technische Universität Graz
- Liebherr-Components Kirchdorf GmbH
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
- Universidad de Castilla-La Mancha Departamento de Ingeniería Eléctrica, Electrónica, Automática y Comunicaciones
- OET GmbH
- Tallinn University of Technology Department of Materials Engineering
- Faigle Kunststoffe GmbH
- Electriq-Global Energy Solutions Ltd
- iwis motorsysteme GmbH & Co. KG
- Mondi Neusiedler GmbH
- Lulea University of Technology Division of Machine Elements
- Mondi Frantschach GmbH
- IDENTEC SOLUTIONS AG
- Collini Wien GmbH
- OMV Exploration & Production GmbH
- Knorr-Bremse Gesellschaft mit beschränkter Haftung
- Toyota Motor Europe NV/SA
- Salvagnini Maschinenbau GmbH
- Know Center Research GmbH
- Dipl.-Ing. Johannes Oberlehner e.U.
- Robert Bosch GmbH
- GKN Sinter Metals S.P.A.
- Reintrieb GmbH
- CEST Kompetenzzentrum für elektrochemische Oberflächentechnologie GmbH
- V-Research GmbH
- Software Competence Center Hagenberg GmbH
- BASF SE
- Bitrez Limited

- Optimol Instruments Prüftechnik GmbH
- Jansen AG
- ELSTA-Mosdorfer Gesellschaft m.b.H.
- Dewitz Consulting & Engineering GmbH
- Coherent Europe B.V.
- FH OÖ Forschungs & Entwicklungs GmbH
- Klaus Urban GmbH
- Schunk Carbon Technology GmbH
- OMV Downstream GmbH
- University of Pisa Dipartimento di Ingegneria civile e industriale
- LIEBHERR-WERK TELFS GMBH
- DIAMOND AIRCRAFT INDUSTRIES GmbH
- AMS Engineering Prime SRL
- SKF B.V.
- Klüber Lubrication München GmbH & Co. KG
- pratopac GmbH
- IMS Gear SE & Co. KGaA
- TOTAL LUBRIFIANTS S.A.
- Busatis GmbH
- Liebherr-Werk Ehingen GmbH
- GGB France EURL
- Evonik Oil Additives GmbH
- Hochschule Mannheim Kompetenzzentrum Tribologie
- Wittmann Battenfeld GmbH
- Fundación TEKNIKER
- CARL BECHEM GMBH
- Josephinum Research
- LUKOIL Lubricants Austria GmbH
- Buntmetall Amstetten Gesellschaft m.b.H.
- Croma-Pharma GmbH
- Castolin Gesellschaft m.b.H.
- SKF Österreich Aktiengesellschaft
- Wanggo Gummitechnik GmbH
- SCHOELLER-BLECKMANN Edelstahlrohr GmbH
- Henn GmbH & Co KG.
- Aerospace & Advanced Composites GmbH
- Cardiff University - School of Engineering
- ZIMM Maschinenelemente GmbH + Co KG
- KRAL GmbH
- Künz GmbH
- Oerlikon Surface Solutions AG, Pfäffikon

- Prof. Dr. Eric Gard
- Robert Bosch Aktiengesellschaft
- Leobersdorfer Maschinenfabrik GmbH
- Gubkin Russian State University of Oil and Gas
- KANSAI HELIOS Austria GmbH
- Tenaris Connections BV
- Daido Metal Co., Ltd. - organizacni slozka, The European Technical Center
- Teufelberger Seil Gesellschaft m.b.H.
- Linde Gas GmbH
- Dr. Franz Novotny-Farkas
- Danish Technological Institute
- Gazpromneft Lubricants Italia S.p.A.
- Virtual Vehicle Research GmbH
- Lingenhölle Technologie GmbH
- FWT COMPOSITES & ROLLS GmbH
- E-T-A Elektrotechnische Apparate GmbH
- Tyco Electronics Austria GmbH
- Heraeus Precious Metals GmbH & Co. KG
- Semperit Technische Produkte Gesellschaft m.b.H.
- Wittur Austria GmbH
- Linde Hydrogen FuelTech GmbH
- voestalpine Stahl GmbH
- INNIO Jenbacher GmbH & Co OG
- University of Leeds School of Mechanical Engineering (iFS)
- AB SKF
- Gruner Aktiengesellschaft
- Thermische Lohn Beschichtungs & Service GmbH
- Johann Glück Werkzeug- und Maschinenbau Ges.m.b.H. & CO KG
- Srednevoljskiy Scientific and Research Institute of Oil Refining (PJSC "SVNIINP")
- AMAG rolling GmbH
- University of Ljubljana
- ÖBB-Infrastruktur Aktiengesellschaft
- FRONIUS INTERNATIONAL GmbH
- Liebherr Machines Bulle S.A.
- W. Hamburger GmbH
- NTB Interstaatliche Hochschule für Technik Buchs
- Kalenborn Kalprotect GmbH & Co. KG
- voestalpine Rail Technology GmbH
- AVL List GmbH
- Palfinger Europe GmbH
- voestalpine Tubulars GmbH & Co KG

- Maschinenfabrik Albert GmbH
- Voith Austria GmbH
- LIEBHERR-TRANSPORTATION SYSTEMS GMBH & Co KG
- Wieland-Werke Aktiengesellschaft
- AIT Austrian Institute of Technology GmbH
- MAGNA Powertrain GmbH & Co KG
- The National Academy of Sciences of Belarus V.A. Belyi Metal-Polymer Research Institutea
- Universität des Saarlandes Lehrstuhl für Funktionswerkstoffe
- Österreichische Tribologische Gesellschaft kurz genannt: ÖTG
- Fachhochschule Wiener Neustadt GmbH
- Technische Universität Wien
- Universität Linz
- GGB Austria GmbH
- Bräcker AG
- Laakirchen Papier AG
- DAS Energy GmbH
- VAUTID Austria GmbH