

XTribology

Excellence Center of Tribology

Programm / Ausschreibung	COMET, K2, 2. Ausschreibung 2014 - 2. Förderperiode	Status	abgeschlossen
Projektstart	01.04.2015	Projektende	31.03.2020
Zeitraum	2015 - 2020	Projektlaufzeit	60 Monate
Keywords	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

- AB SKF
- Aerospace & Advanced Composites GmbH
- AIT Austrian Institute of Technology GmbH
- AMAG rolling GmbH
- AMS Engineering Prime SRL
- AVL List GmbH
- BASF SE
- Bitrez Limited
- Bräcker AG
- Buntmetall Amstetten Gesellschaft m.b.H.
- Busatis GmbH
- Cardiff University - School of Engineering
- CARL BECHEM GMBH
- Castolin Gesellschaft m.b.H.
- CEST Kompetenzzentrum für elektrochemische Oberflächen- technologie GmbH
- Coherent Europe B.V.
- Collini Wien GmbH
- Croma-Pharma GmbH
- Daido Metal Co., Ltd. - organizacni slozka, The European Technical Center
- Danish Technological Institute
- DAS Energy GmbH
- Dewitz Consulting & Engineering GmbH
- DIAMOND AIRCRAFT INDUSTRIES GmbH
- Dipl.-Ing. Johannes Oberlehner e.U.
- Dr. Franz Novotny-Farkas
- E-T-A Elektrotechnische Apparate GmbH
- EBNER Industrieofenbau GmbH
- Electriq-Global Energy Solutions Ltd
- ELSTA-Mosdorfer Gesellschaft m.b.H.
- Evonik Oil Additives GmbH
- Fachhochschule Wiener Neustadt GmbH

- Faigle Kunststoffe GmbH
- FH OÖ Forschungs & Entwicklungs GmbH
- Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. Fraunhofer-Institut für Keramische Technologien und Systeme IKTS
- FRONIUS INTERNATIONAL GmbH
- Fundación TEKNIKER
- FWT COMPOSITES & ROLLS GmbH
- Gazpromneft Lubricants Italia S.p.A.
- GGB Austria GmbH
- GGB France EURL
- GKN Sinter Metals S.P.A.
- Gruner Aktiengesellschaft
- Gubkin Russian State University of Oil and Gas
- Henn GmbH & Co KG.
- Heraeus Precious Metals GmbH & Co. KG
- Hochschule Mannheim Kompetenzzentrum Tribologie
- IDENTEC SOLUTIONS AG
- IMS Gear SE & Co. KGaA
- INNIO Jenbacher GmbH & Co OG
- iwis motorsysteme GmbH & Co. KG
- Jansen AG
- Johann Glück Werkzeug- und Maschinenbau Ges.m.b.H. & CO KG
- Josephinum Research
- Kalenborn Kalprotect GmbH & Co. KG
- KANSAI HELIOS Austria GmbH
- Klaus Urban GmbH
- Klüber Lubrication München GmbH & Co. KG
- Knorr-Bremse Gesellschaft mit beschränkter Haftung
- Know Center Research GmbH
- KRAL GmbH
- Künz GmbH
- Laakirchen Papier AG
- Lenzing Technik GmbH
- Leobersdorfer Maschinenfabrik GmbH
- Liebherr Machines Bulle S.A.
- Liebherr-Components Kirchdorf GmbH
- LIEBHERR-TRANSPORTATION SYSTEMS GMBH & Co KG
- Liebherr-Werk Ehingen GmbH
- LIEBHERR-WERK TELFS GMBH
- Linde Gas GmbH
- Linde Hydrogen FuelTech GmbH

- Lingenhölle Technologie GmbH
- LUKOIL Lubricants Europe GmbH
- Lulea University of Technology Division of Machine Elements
- MAGNA Powertrain GmbH & Co KG
- Maschinenfabrik Albert GmbH
- Mondi Frantschach GmbH
- Mondi Neusiedler GmbH
- NTB Interstaatliche Hochschule für Technik Buchs
- Oerlikon Surface Solutions AG, Pfäffikon
- OET GmbH
- OMV Downstream GmbH
- OMV Exploration & Production GmbH
- Optimol Instruments Prüftechnik GmbH
- Palfinger Europe GmbH
- pratopac GmbH
- Prof. Dr. Eric Gard
- Reintrieb GmbH
- Robert Bosch Aktiengesellschaft
- Robert Bosch GmbH
- Salvagnini Maschinenbau GmbH
- SCHOELLER-BLECKMANN Edelstahlrohr GmbH
- Schunk Carbon Technology GmbH
- Semperit Technische Produkte Gesellschaft m.b.H.
- SKF B.V.
- SKF Österreich Aktiengesellschaft
- Software Competence Center Hagenberg GmbH
- Srednevoljskiy Scientific and Research Institute of Oil Refining (PJSC "SVNIINP")
- Tallinn University of Technology Department of Materials Engineering
- Tampere University of Technology Laboratory of Materials Science
- TE Connectivity Austria GmbH
- Technische Universität Graz Institut für Maschinenelemente und Entwicklungsmethodik
- Technische Universität Wien Atominstitut
- Technische Universität Wien Institut für Angewandte Physik
- Technische Universität Wien Institut für Chemische Technologien und Analytik
- Technische Universität Wien Institut für Fahrzeugantriebe und Automobiltechnik
- Technische Universität Wien Institut für Fertigungstechnik und Photonische Technologien
- Technische Universität Wien Institut für Konstruktionswissenschaften und Produktentwicklung
- Technische Universität Wien Institut für Sensor- und Aktuatorssysteme
- Technische Universität Wien Institut für Strömungsmechanik und Wärmeübertragung
- Technische Universität Wien Institut für Werkstoffwissenschaft und Werkstofftechnologie
- Technische Universität Wien Universitäre Service-Einrichtung für Transmissions-Elektronenmikroskopie (USTEM)

- Technische Universität Wien X-Ray Center (XRC) Röntgenzentrum
- Tenaris Connections BV
- Teufelberger Seil Gesellschaft m.b.H.
- The National Academy of Sciences of Belarus V.A. Belyi Metal-Polymer Research Institute
- Thermische Lohn Beschichtungs & Service GmbH
- TOTAL LUBRIFIANTS S.A.
- Toyota Motor Europe NV/SA
- Universidad de Castilla-La Mancha Departamento de Ingeniería Eléctrica, Electrónica, Automática y Comunicaciones
- University of Leeds School of Mechanical Engineering (iFS)
- University of Ljubljana Faculty of Mechanical Engineering (FME)
- University of Pisa Dipartimento di Ingegneria civile e industriale
- Universität des Saarlandes Lehrstuhl für Funktionswerkstoffe
- Universität Linz Institut für Organische Chemie
- Universität Linz Institut für Polymerwissenschaften
- Universität Linz Zentrum für Oberflächen- und Nanoanalytik (ZONA)
- V-Research GmbH
- VAUTID Austria GmbH
- Virtual Vehicle Research GmbH
- voestalpine Rail Technology GmbH
- voestalpine Stahl GmbH
- voestalpine Tubulars GmbH & Co KG
- Voith Austria GmbH
- W. Hamburger GmbH
- Wanggo Gummitechnik GmbH
- Wieland-Werke Aktiengesellschaft
- Wittmann Battenfeld GmbH
- Wittur Austria GmbH
- ZIMM Maschinenelemente GmbH + Co KG
- ÖBB-Infrastruktur Aktiengesellschaft
- Österreichische Tribologische Gesellschaft kurz genannt: ÖTG