

CELEST Member Short Profile



Christian Kübel

Christian Kübel leads an interdisciplinary group focusing on advanced Electron Microscopy & Spectroscopy at the Institute of Nanotechnology (KIT) since 2009. In addition, since 2011 he is a PI at the Helmholtz Institute Ulm, since 2013 deputy director of the Karlsruhe Nano Micro Facility (KNMFi) and since 2019 Prof. for *in-situ* Electron Microscopy at the Technical University Darmstadt (TUDa).

Previously, he was leading the Nanostructure and Surface Analysis group at Fraunhofer IFAM (2005-2008) and worked as a senior application specialist TEM at Philips/FEI Company (2009-2004). Christian Kübel was honored with a Feodor-Lynen (AvH) postdoctoral fellowship (1999-2000) working at the University of Michigan, Ann Arbor and with a Fonds der Chemischen Industrie (FCI) scholarship for his PhD (1995-1998) at the Max-Planck-Institute for Polymer Research.

Christian Kübel is a board member of the Deutsche Gesellschaft für Elektronenmikroskopie (DGE) and a member of the steering board of the Helmholtz Imaging Platform and the KIT Center Materials-Structure-Function.

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Research areas

Development of electron microscopy approaches (4D-STEM, *in-situ* TEM, tomography) and application of advanced TEM, SEM and FIB characterization methods in materials research, especially for batteries, catalysis, nanocrystalline metals and nanocomposites.

Lab equipment (KIT Campus North)

Transmission electron microscopes (TEMs): 1) double corrected TFS Themis Z with EDX and high-res. EELS spectroscopy, high-sensitivity Gatan K3 camera, 2) probe corrected TFS Themis 300 with EDX spectroscopy, NanoMegas electron precession, high-speed Dectris pixelated detector, 3) TFS Tecnai F20. All TEMs are equipped with a wide range of holders for *in-situ* heating/cooling, vacuum transfer, electron tomography, electrical, mechanical and gas phase studies.

Focused ion beam systems (FIBs): TFS Strata 400 DualBeam FIB, Zeiss Auriga 60 CrossBeam FIB with vacuum transfer system, EDX, EBSD and cryo stage, TESCAN Solaris X PlasmaFIB. AFM-in-SEM system compatible with Auriga/Solaris X.

Sample preparation: MicroPrep laser structuring, argon ion cross-section polisher, electro polishing, various mechanical grinding & polishing tools, various coating systems, 2 gloves boxes, various optical microscopes.

Christian Kübel @ INT

<https://www.int.kit.edu/kuebel.php>

Link INT

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Link lab equipment

<https://www.int.kit.edu/5989.php>

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