

Prof. Dr. Christoph Eberl

*16.01.1975

Institution: Department of Microsystems Engineering – IMTEK, Faculty of Engineering, University of Freiburg, Georges-Koehler-Allee 078, D-79110 Freiburg

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Position: Full Professor

Research interest, keywords

materials reliability | fatigue in materials | physical degradation mechanisms | meta materials | programmable materials | experimental mechanics | digital representations of materials

Postgraduate professional career

- since 2018 Founding Board Member Excellence Cluster *livMatS*, Uni Freiburg
- since 2018 Scientific Coord., Fraunhofer Cluster of Excellence ‘Programmable Materials’
- since 2014 Full Professor, Micro- and Materials Mechanics, Department of Microsystems Engineering – IMTEK, University of Freiburg
- since 2014 Deputy Director, Fraunhofer Institute for Materials Mechanics, Freiburg
- since 2007 Invited Visiting Scientist, Johns Hopkins University, Baltimore, USA
- 2012 – 2018 Group Leader, *Meso- and Micromechanics*, Fraunhofer Institute for Materials Mechanics, Freiburg
- 2007 – 2012 Independent Group Leader, *Microreliability*, Institute for Applied Materials, Karlsruhe Institute of Technology
- 2005 – 2007 PostDoc, Mechanical Engineering, Johns Hopkins University, Baltimore, USA. Hosts: W.N Sharp, K.J. Hemker

Academic qualification and education

- Doctorate: Materials Science, University of Stuttgart, 2004, Prof. Dr. E. Arzt
- Diploma: Dipl.-Ing. Materials Science, University of Stuttgart, 2001, Prof. Dr. E. Arzt

Honors and awards

- 2018 – today Member of Fraunhofer Vintage Class
- 2012 – 2017 Group Leader, Fraunhofer *Attract* Program
- 2007 – 2012 Junior Research Group Leader, Collab. Research Center SFB 499, DFG
- 2008 – 2011 Certificate *Academic Leadership*, Karlsruhe Institute of Technology (KIT)
- 2006 – 2007 PostDoc grant, Max-Planck-Institute for Metals Research, Stuttgart
- 2006 Otto-Hahn-Medal, Max-Planck Society
- 2004 Doctoral thesis with distinction

Professional activities

- 2018 – 2019 Chair of Brazilian-German Frontiers of Science and Technology Symposium, Alexander von Humboldt Stiftung
- 2017 – today Scientific Advisor Fraunhofer Materials Data Space
- 2016 – today Member, Organizational Management Board, European Materials Characterization Council (EMCC)
- 2015 – today Group Leader, *Validation*, European Materials Modeling Council (EMMC)
- 2007 – today Organizer of several Symposia e.g. at the Materials Research Society (MRS), The Minerals, Metals & Materials Society (TMS)
- 2011 – today Co-Founder of the Karl-Drais-Gesellschaft zur Förderung der Wissenschaften e.V
- 2008 – 2012 Speaker of the *Young Investigator Network* (YIN), Karlsruhe Institute of Technology (KIT)

Ten most important publications**Published, peer-reviewed research articles:**

1. MF Berwind, A Hashibon, A Fromm, M Gurr, F Burmeister, **C Eberl** (2017), Rapidly prototyping biocompatible surfaces with designed wetting properties via photolithography and plasma polymerization, *Microfluidics and Nanofluidics*, 2, 9, 144.
2. Li X, Dao M, **Eberl C**, Hodge AM, Gao H (2016). Fracture, fatigue, and creep of nanotwinned metals. *MRS Bulletin* 41: 298–304.
3. Yoo BG, Boles ST, Liu Y, Zhang X, Schwaiger R, **Eberl C**, Kraft O (2014). Quantitative damage and detwinning analysis of nanotwinned copper foil under cyclic loading. *Acta Materialia* 81: 184–93.
4. Straub T, Theillet P-O, **Eberl C**, Pierron ON (2013). Comparison of the Stress Distribution and Fatigue Behavior of 10- and 25- μ m-Thick Deep-Reactive-Ion-Etched Si Kilohertz Resonators. *J. Microelectr. Syst.* 22(2): 418–29.
5. Bückmann T, Stenger N, Kadic M, Kaschke J, Frölich A, Kennerknecht T, **Eberl C**, Thiel M, Wegener, M (2012). Tailored 3D mechanical metamaterials made by dip-in direct-laser-writing optical lithography. *Adv. Mat.* 24(20): 2710–4.
6. **Eberl C**, Riesch-Oppermann H, Spolenak R, Kubat F, Ruile W, Courty D, Kraft O (2010). In situ observations and quantitative analysis of short circuit probability due to ultra high frequency fatigue. *IEEE Trans. Dev. Mat. Rel.* 10(3): 366–73.
7. Gianola DS, **Eberl C** (2009). Micro- and nanoscale tensile testing of materials. *JOM* 61(3): 24–35.
8. Gianola DS, **Eberl C**, Cheng XM, Hemker KJ (2008) Stress-driven surface topography evolution in nanocrystalline Al thin films. *Adv. Mat.* 20(2): 303–8.
9. Sharpe Jr. WN, Pulskamp J, Gianola DS, **Eberl C**, Polcawich RG, Thompson RJ (2007). Strain measurement of silicon dioxide microspecimens by digital image processing. *Exp. Mech.* 47(5): 649–58.
10. **Eberl C**, Spolenak R, Kraft O, Kubat F, Ruile W, Arzt E (2006). Fatigue at ultra high frequencies in Al thin films. *J. Appl. Phys.*, 99(11): 113501, DOI: 10.1063/1.2189970.