

---

## Laboratory for Joining Technologies & Corrosion

### Publications 2015

---

- W. J. Lee, R. Partovi-Nia, T. Suter, C. Leinenbach, *Electrochemical characterization and corrosion behavior of an Fe-Mn-Si shape memory alloy in simulated concrete pore solutions*, **Materials and Corrosion** (2015) in press [DOI: [10.1002/maco.201508701](https://doi.org/10.1002/maco.201508701)].
- Y. Tao, P. Navaretti, R. Hauert, U. Grob, M. Poggio, C. L. Degen, *Permanent reduction of dissipation in nanomechanical Si resonators by chemical surface protection*, **Nanotechnology** 26 (2015) 465501 [DOI: [10.1088/0957-4484/26/46/465501](https://doi.org/10.1088/0957-4484/26/46/465501)].
- O. Martin, C. Mondelli, D. Curulla-Ferre, C. Drouilly, R. Hauert, J. Pérez-Ramírez, *Zinc-Rich Copper Catalysts Promoted by Gold for Methanol Synthesis*, **ACS Catalysis** 5 (2015) 5607-5616 [DOI: [10.1021/acscatal.5b00877](https://doi.org/10.1021/acscatal.5b00877)].
- T. Wang, T. Ivas, C. Leinenbach, J. Zhang, *Microstructural characterization of Si<sub>3</sub>N<sub>4</sub>/42CrMo joint brazed with Ag-Cu-Ti + TiNp composite filler*, **Journal of Alloys and Compounds** 651 (2015) 623-630 [DOI: [10.1016/j.jallcom.2015.08.138](https://doi.org/10.1016/j.jallcom.2015.08.138)].
- A. Lis, C. Leinenbach, *Effect of Process and Service Conditions on TLP-Bonded Components with (Ag,Ni-Sn Interlayer Combinations*, **Journal of Electronic Materials** 44 (2015) 4576-4588 [DOI: [10.1007/s11664-015-3982-3](https://doi.org/10.1007/s11664-015-3982-3)].
- D. Flötotto, Z.M. Wang, L.P.H. Jeurgens, E.J. Mittemeijer, *Kinetics and magnitude of the reversible stress evolution during polycrystalline film growth interruptions*, **Journal of Applied Physics** 118 (2015) 055305 [DOI: [10.1063/1.4928162](https://doi.org/10.1063/1.4928162)].
- K. Weller, N. Zotov, Z.M. Wang, L.P.H. Jeurgens, E.J. Mittemeijer, *Atomic structure, electronic structure and thermal stability of amorphous Al<sub>x</sub>Zr<sub>1-x</sub> (0.26 ≤ x ≤ 0.75)*, **Journal of Non-Crystalline Solids** 427 (2015) 104-113 [DOI: [10.1016/j.jnoncrysol.2015.07.036](https://doi.org/10.1016/j.jnoncrysol.2015.07.036)].
- W.J. Lee, B. Weber, C. Leinenbach, *Recovery stress formation in a restrained Fe-Mn-Si-based shape memory alloy used for prestressing or mechanical joining*, **Construction and Building Materials** 95 (2015) 600-610 [DOI: [10.1016/j.conbuildmat.2015.07.098](https://doi.org/10.1016/j.conbuildmat.2015.07.098)].
- Z.M. Wang, L.P.H. Jeurgens, W. Sigle, E.J. Mittemeijer, *Observation and origin of extraordinary atomic mobility at metal-semiconductor interfaces at low temperatures*, **Physical Review Letters** 115 (2015) 016102 [DOI: [10.1103/PhysRevLett.115.016102](https://doi.org/10.1103/PhysRevLett.115.016102)].
- D. Bernoulli, A. Rico, A. Wyss, K. Thorwarth, J.P. Best, R. Hauert, R. Spolenak, *Improved contact damage resistance of hydrogenated diamond-like carbon (DLC) with a ductile α-Ta interlayer*, **Diamond & Related Materials** 58 (2015) 78-83 [DOI: [10.1016/j.diamond.2015.06.006](https://doi.org/10.1016/j.diamond.2015.06.006)].
- J. Hofstetter, E. Martinelli, S. Pogatscher, P. Schmutz, E. Povoden-Karadeniz, A.M. Weinberg, P.J. Uggowitzer, J.F. Löffler, *Influence of trace impurities on the in vitro and in vivo degradation of biodegradable Mg-5Zn-0.3Ca alloys*, **Acta Biomaterialia** 23 (2015) 347-353 [DOI: [10.1016/j.actbio.2015.05.004](https://doi.org/10.1016/j.actbio.2015.05.004)].
- Ch. Affolter, G. Piskoty, R. E. Koller, U. Gfeller, G. P. Terrasi, *Limitations of analytical strength verifications with local effects and nonlinearities: A case study on a failed high rack rail*, **Engineering Failure Analysis** 56 (2015) 28-38 [DOI: [10.1016/j.engfailanal.2015.05.002](https://doi.org/10.1016/j.engfailanal.2015.05.002)].
- K. Weller, Z. Wang, L.P.H. Jeurgens, E. Mittemeijer, *Thermodynamics controls amorphous oxide formation: Exclusive formation of a stoichiometric amorphous (Al<sub>0.33</sub>Zr<sub>0.67</sub>)O<sub>1.83</sub> phase upon thermal oxidation of Al-Zr*, **Acta Materialia** 94 (2015) 134-142 [DOI: [10.1016/j.actamat.2015.04.038](https://doi.org/10.1016/j.actamat.2015.04.038)].
- C. Affolter, U. Müller, C. Leinenbach, B. Weisse, *Compressive Testing of Ductile High-Strength Alloys*, **Journal of Testing and Evaluation** 43 (2015) 1-10 [DOI: [10.1520/JTE20140301](https://doi.org/10.1520/JTE20140301)].

- M. Koster, W.J. Lee, M. Schwarzenberger, C. Leinenbach, Cyclic deformation and structural fatigue behavior of an Fe–Mn–Si shape memory alloy, **Materials Science & Engineering** 637 (2015) 29–39 [DOI: [10.1016/j.msea.2015.04.028](https://doi.org/10.1016/j.msea.2015.04.028)].
- J. Janczak-Rusch, M. Chiodi, C. Cancellieri, F. Moszner, R. Hauert, G. Pigozzi, L. P. H. Jeurgens, *Structural evolution of Ag-Cu nano-alloys confined between AlN nano-layers upon fast heating*, **Physical Chemistry Chemical Physics** 17 (2015) 28228–28238 [DOI: [10.1039/C5CP00782H](https://doi.org/10.1039/C5CP00782H)].
- A. B. Spierings, C. Leinenbach, C. Kenel, K. Wegener, *Processing of metal-diamond-composites using selective laser melting*, **Rapid Prototyping Journal** 21 (2015) 130–136 [DOI: [10.1108/RPJ-11-2014-0156](https://doi.org/10.1108/RPJ-11-2014-0156)].
- C. Leinenbach, R. Transchel, K. Gorgievski, F. Kuster, H. R. Elsener, K. Wegener, *Microstructure and Mechanical Performance of Cu-Sn-Ti-Based Active Braze Alloy Containing In Situ Formed Nano-Sized TiC Particles*, **Journal of Materials Engineering and Performance** 24 (2015) 2042–2050 [DOI: [10.1007/s11665-015-1471-8](https://doi.org/10.1007/s11665-015-1471-8)].
- N. Weyrich, C. Leinenbach, *Characterization of the isothermal solidification process in the Ni/Au-Ge layer system*, **Journal of Material Science** 50 (2015) 3835–3844 [DOI: [10.1007/s10853-015-8952-x](https://doi.org/10.1007/s10853-015-8952-x)].
- B. Lehmert, J. Janczak-Rusch, G. Pigozzi, P. Zuraw, F. La Mattina, L. Wojarski, W. Tillmann, L.P.H. Jeurgens, *Copper-Based Nanostructured Coatings for Low-Temperature Brazing Applications*, **Materials Transactions** 56 (2015) 1015–1018 [DOI: [10.2320/matertrans.MI201419](https://doi.org/10.2320/matertrans.MI201419)].
- C. Kenel, C. Leinenbach, *Influence of cooling rate on microstructure formation during rapid solidification of binary TiAl alloys*, **Journal of Alloys and Compounds** 637 (2015) 242–247 [DOI: [10.1016/j.jallcom.2015.03.016](https://doi.org/10.1016/j.jallcom.2015.03.016)].
- D. Fodor, F. Krumeich, R. Hauert, J.A. van Bokhoven, *Differences Between Individual ZSM-5 Crystals in Forming Hollow Single Crystals and Mesopores During Base Leaching*, **Chemistry European Journal** 21 (2015) 6272–6277 [DOI: [10.1002/chem.201406182](https://doi.org/10.1002/chem.201406182)].
- A. Beni, N. Ott, S. Caporali, O. Guseva, P. Schmutz, *Passivation/precipitation mechanisms of Al-Cr-Fe Complex Metallic Alloys in acidic chloride containing electrolyte*, **Electrochimica Acta** 179 (2015) 411–422 [DOI: [10.1016/j.electacta.2015.02.192](https://doi.org/10.1016/j.electacta.2015.02.192)].
- Y. G. Sona, J.H. Ryua, W. J. Lee, Y. C. Lee, H. H. Joc, Y. H. Parka, *Numerical study of three-dimensional convection due to buoyancy force in an aluminum oxide melt for Kyropoulos growth*, **Journal of Ceramic Processing Research** 16 (2015) 68–73 [Source].
- G. Piskoty, S.A. Michel, S. Valet, M. Koster, M. Sauder, H.J. Schindler, *Non-intuitive fracture pattern of a failed crane-hanger: A fracture mechanics-based explanation*, **Engineering Failure Analysis** 56 (2015) 307–319 [DOI: [10.1016/j.engfailanal.2015.01.012](https://doi.org/10.1016/j.engfailanal.2015.01.012)].
- R. Longtin, J. R. Sanchez-Valencia, I. Shorubalko, R. Furrer, E. Hack, H.-R. Elsener, O. Gröning, P. Greenwood, N. Rupesinghe, K. Teo, C. Leinenbach, P. Gröning, *Active vacuum brazing of CNT films to metal substrates for superior electron field emission performance*, **Science and Technology of Advanced Materials** 16 (2015) 015005 [DOI: [10.1088/1468-6996/16/1/015005](https://doi.org/10.1088/1468-6996/16/1/015005)].
- D. Bernoulli, A. Wyss, R. Raghavan, K. Thorwarth, R. Hauert, R. Spolenak, *Contact damage of hard and brittle thin films on ductile metallic substrates: an analysis of diamond-like carbon on titanium substrates*, **Journal of Materials Science** 50 (2015) 2779–2787 [DOI: [10.1007/s10853-015-8833-3](https://doi.org/10.1007/s10853-015-8833-3)].
- *Metal-Induced Crystallization - Fundamentals and Applications* by Z.M. Wang, L.P.H. Jeurgens, E.J. Mittemeijer (Pan Stanford Publishing, Singapore, 2015). ISBN: 9789814463409 [source].
- K. Weller, L.P.H. Jeurgens, Z.M. Wang, E.J. Mittemeijer, *Thermal oxidation of amorphous Al<sub>0.44</sub>Zr<sub>0.56</sub> alloys*, **Acta Materialia** 87 (2014) 187–200. [DOI: [10.1016/j.actamat.2014.12.022](https://doi.org/10.1016/j.actamat.2014.12.022)].

- S. Nowakowska, A. Wäckerlin, S. Kawai, T. Ivas, J. Nowakowski, S. Fatayer, C. Wäckerlin, T. Nijs, E. Meyer, J. Björk, M. Stöhr, L. H. Gade, T. A. Jung, *Interplay of weak interactions in the atom-by-atom condensation of xenon within quantum boxes*, **Nature Communications** 6 (2015) 6071 [DOI: [10.1038/ncomms7071](https://doi.org/10.1038/ncomms7071)].
- Y. Cho, W. Lee, Y. Park, *Effect of boundary conditions on plasticity and creep behavior analysis of particle reinforced composites by representative volume element approach*, **Computational Materials Science** 100 (2015) 67-75 [DOI: [10.1016/j.commatsci.2014.11.036](https://doi.org/10.1016/j.commatsci.2014.11.036)].
- S. Yim, W. Lee, D. Cho, I. Park, *Finite Element Analysis of Compressive Behavior of Hybrid Short Fiber/Particle/Mg Metal Matrix Composites Using RVE Model*, **Metals and Materials International** 21 (2015) 408-414 [DOI: [10.1007/s12540-015-4306-0](https://doi.org/10.1007/s12540-015-4306-0)].
- D. Bernoulli, K. Häfliger, K. Thorwarth, G. Thorwarth, R. Hauert, R. Spolenak, *Cohesive and adhesive failure of hard and brittle films on ductile metallic substrates: A film thickness size effect analysis of the model system hydrogenated diamond-like carbon ( $\alpha$ -C:H) on Ti substrates*, **Acta Materialia** 83 (2015) 29-36 [DOI: [10.1016/j.actamat.2014.09.044](https://doi.org/10.1016/j.actamat.2014.09.044)].