

1. I. El Azhari, J. Barrirero, N. Valle, J. Garcia, L. von Fieandt, M. Engstler, F. Soldera, L. Llanes, F. Mücklich
Impact of temperature on chlorine contamination and segregation for Ti (C, N) CVD thin hard coating studied by nano-SIMS and atom probe tomography
(2021) Scripta Materialia 208 114321
DOI: 10.1016/j.scriptamat.2021.114321
2. U. P. Nayak, S. Suárez, V. Pesnel, F. Mücklich, M.A. Guitar
Load dependent microstructural evolution in an as-cast 26% Cr hih chromium cast iron during unlubricated sliding
(2021) Friction, pp 1-18
DOI: 10.1007/s40544-021-0553x
3. S. Tabean, M. Mousley, C. Pauly, O. De Castro, E. Serralta, N. Klingner, F. Mücklich, G. Hlawacek, T. Wirtz, S. Eswara
Quantitative nanoscale imaging using transmission He ion channeling contrast: Proof-of-concept and application to study isolated crystalline defects
(2021) Ultramicroscopy 233 113439
DOI: 10.1016/j.ultramic.2021.113439
4. U. P. Nayak, J. Weber, V. Pesnel, F. Mücklich, M. A. Guitar
Development of a protective coating for evaluating the sub-surface microstructure of a worn material
(2021) Tribology Letters 69 4, pp 1-13
DOI: 10.1007/s11249-021-01541-8
5. S. M. Lößlein, F. Mücklich, P. Grützmacher
Topography versus chemistry – how can we control surface wetting?
(2021) Journal of colloid and Interface Science
DOI: 10.1016/j.jcis.2021.11.071
6. M. Müller, D. Britz, T. Staudt, F. Mücklich
Microstructural Classification of bainitic subclasses in low-carbon multi-hase steels using machine learning techniques
(2021) Metals, 11 11, p 1836
DOI: 10.3390/met11111836
7. M. R. Alhafian, J.B. Chemin, Y. Fleming, L. Bourgeois, M. Penoy, R. Useldinger, F. Soldera, F. Mücklich, P. Choquet
Comparison on the structural, mechanical and tribological properties of TiAlN coatings deposited by HiPIMS and cathodic arc evaporation
(2021) Surface and Coatings Technology 423 127529
DOI: 10.1016/j.surfcoat.2021.127529
8. D. Garcia, S. Suárez, K. Aristizabal, F. Mücklich
Powder-metallurgical fabrication and electrical contact resistance characterization of copper-nickel composites reinforced by multiwalled carbon nanotubes
(2021) Advanced Engineering Materials 2100755
DOI: 10.1002/adem.202100755
9. U. P. Nayak, M. Müller, D. Britz, M.A. Guitar, F. Mücklich
Image Processing using open source tools and their implementation in the analysis of complex microstructures
(2021) Practical Metallography, 58 8, pp 484-506
DOI: 10.1515/pm-2021-0039
10. S. Pal, J. Barrirero, M. Lehmann, Q. Jeangros, N. Valle, F.-J. Haug, A. Hessler-Wyser, C. N. Shyam Kumar, F. Mücklich, T. Wirtz, S. Eswara
Quantification of hydrogen in nanostructured hydrogenated passivating contact for silicon photovoltaics combining SIMS-APT-TEM: A multiscale correlative approach
(2021) Applied Surface Science 555
DOI: 10.1016/j.apsusc.2021.149650

11. T. Fox, S. M. Löblein, D. W. Müller, F. Mücklich
Metallography and biomimetics – or new surfaces without chemistry?
(2021) *Practical Metallography*, 58 7, pp 446-459
DOI: 10.1515/pm-2021-0034
12. S. M. Löblein, M. Kasper, R. Merz, C. Pauly, D. W. Müller, M. Kopnarski, F. Mücklich
Patience alone is not enough a guide for the preparation of low-defect sections from pure copper
(2021) *Practical Metallography*, 58 7, pp 388-407
DOI: 10.1515/pm-2021-0031
13. M. Müller, D. Britz, F. Mücklich
Scale-bridging microstructural analysis – a correlative approach to microstructure quantification combining microscopic images and EBSD data
(2021) *Practical Metallography*, 58 7, pp 408-426
DOI: 10.1515/pm-2021-0032
14. C. Pauly, K. Frost, S. Slawik, F. Mücklich, R. Vätz, P. P. Schepp
Pigment analysis using techniques from the field of materials science – a contribution to the restoration of the (2021) “Frankfurt Kitchen”, *Practical Metallography*, 58 7, pp 427-445
DOI: 10.1515/pm-2021-0033
15. B. Callegari, L. Campo, K. Aristizabal, M. A. Guitar, F. Warchomicka, R. S. Coelho, P. P. Brito, F. A. Soldera, F. Mücklich, H. C. Pinto
In situ assessment of isochronal phase transformations in a lamellar Ti-5Al-5Mo-5V-3Cr-1Zr alloy using synchrotron X-ray diffraction
(2021) *Journal of Alloys and Compounds*, 853, 2021, 157105
DOI: 10.1016/j.jallcom.2020.157105
16. B. Alderete, T. MacLucas, D. Espin, S. P. Brühl, F. Mücklich, S. Suárez
Near Superhydrophobic Carbon Nanotube Coatings Obtained via Electrophoretic Deposition on Low-Alloy Steels
(2021) *Advanced Engineering Materials* 23, 5 2001448
DOI: 10.1002/adem.202001448
17. Y. H. Sauni Camposano, S. S. Riegler, K. Jaekel, J. Schmauch, C. Pauly, C. Schäfer, H. Bartsch, F. Mücklich, I. Gallino, P. Schaaf
Phase Transformation and characterization of 3D Reactive Microstructures in Nanoscale Al/Ni Multilayers
(2021) *Applied Sciences*, 11, 19 9304
DOI: 10.3390/app11199304
18. F. Alderete, R. Puyol, S. Slawik, E. Espin, F. Mücklich, S. Suárez
Multipurpose setup used to characterize tribo-electrical properties of electrical contact materials
(2021) *MethodsX*, 8 101498
DOI: 10.1016/j.mex.2021.101498
19. P. Ramos, R. S. Coelho, F. Soldera, H. C. Pinto, F. Mücklich, P. Brito
Residual stress analysis in thermally grown oxide scales developed on Nb alloyed refractory austenitic stainless steels
(2021) *Corrosion Science* 178 109066
DOI: 10.1016/j.corsci.2020.109066
20. J. Luksch, A. Jung, C. Pauly, R. Derr, P. Grünewald, M. Laub, M. Klaus, C. Genzel, C. Motz, F. Mücklich, F. Schaefer
Ni/Al-Hybrid Cellular Foams: An Interface Study by Combination of 3D-Phase Morphology Imaging, Microbeam Fracture Mechanics and In Situ Synchrotron Stress Analysis
(2021) *Materials*, 14, 13 3473
DOI: 10.3390/ma14133473

21. J. Minguela, D. W. Müller, F. Mücklich, L. Llanes, M. P. Ginebra, J. J. Roa, C. Mas-Moruno
Peptidic biofunctionalization of laser patterned dental zirconia: A biochemical-topographical approach
(2021) *Materials Science and Engineering: C* 125 112096
DOI: 10.1016/j.msec.2021.112096
22. M. Moreno, I. El Azhari, D. Apel, M. Meixner, W. Wan, H. Pinto, F. Soldera, F. Mücklich, J. García
Design of Comb Crack Resistant Milling Inserts: A Comparison of Stresses, Crack Propagation, and
Deformation Behavior between Ti (C, N)/ α -Al₂O₃ and Zr (C, N)/ α -Al₂O₃ CVD Coatings
(2021) *Crystals* 11, 5, 493
DOI: 10.3390/cryst11050493
23. C. J. Hsu, A. Stratmann, S. Medina, G. Jacobs, F. Mücklich, C. Gachot
Does laser surface texturing really have a negative impact on the fatigue lifetime of mechanical
components? (2021) *Friction*, 9, 6 pp 1766-1775
DOI: 10.1007/s40544-021-0508-2
24. A. Borroto, S. Bruyère, S. Migot, J. F. Pierson, F. Mücklich, D. Horwat
Growth kinetics and origin of residual stress of two-phase crystalline–amorphous nanostructured films
(2021) *Journal of Applied Physics* 129, 14, 145301
DOI: 10.1063/5.0044029
25. A. Durmaz, M. Müller, B. Lei, A. Thomas, D. Britz, E. Holm, C. Eberl, F. Mücklich, P. Gumbsch
A Deep Learning Approach for Complex Microstructure Inference
(2021) *Research Square*, PDF
DOI: 10.21203/rs.3.rs-371580/v1
26. K. Siems, D. Müller, L. Maertens, R. Van Houdt, R. L. Mancinelli, N. Caplin, J. Krause, R. Demets,
A. Tortora, M. Laue, F. Mücklich, C.E. Hellweg, R. Möller
Fighting microbial biofilms in space by ESA's upcoming space microbiology and material science
experiment BIOFILMS
oral presentation, Human in Space 2021, Moscow, April 2021
27. D.W. Müller, S. Löblein, E. Terriac, K. Brix, K. Siems, R. Moeller, R. Kautenburger, F. Mücklich
Antimicrobial Copper Surfaces: Increasing Antibacterial Efficiency of Cu Surfaces by targeted Surface
Functionalization via Ultrashort Pulsed Direct Laser Interference Patterning
(2021) *Advanced Materials Interfaces* 8 (5) 2170027
DOI: 10.1002/admi.202170027
28. D. W. Müller, S. Löblein, E. Terriac, K. Brix, K. Siems, R. Moeller, R. Kautenburger, F. Mücklich
Increasing Antibacterial Efficiency of Cu Surfaces by targeted Surface Functionalization via Ultrashort
Pulsed Direct Laser Interference Patterning
(2021) *Advanced Materials Interfaces* 8, 5 2001656
DOI: 10.1002/admi.202001656
29. V. Lyamkin, C. Pauly, P. Starke, F. Mücklich, C. Boller
Impact of cyclic strain on deformation-induced martensite morphology and magnetic properties of
type 347 austenitic stainless steel
(2021) *Materials Today Communications* 26 101803
DOI: 10.1016/j.mtcomm.2020.101803
30. A. Rosenkranz, P. G. Grützmacher, K. Murzyn, C. Mathieu, F. Mücklich
Multi-scale surface patterning to tune friction under mixed lubricated conditions
(2021) *Applied Nanoscience* 11, 3, 751-762
DOI: 10.1007/s13204-019-01055-9
31. A. Borroto, A.C. García-Wong, S. Bruyère, S. Migot, D. Pilloud, J.F. Pierson, F. Mücklich, D. Horwat
Composition-driven transition from amorphous to crystalline films enables bottom-up design of
functional surfaces
(2021) *Applied Surface Science* 538 1481333
DOI: 10.1016/j.apsusc.2020.148133

32. L. P. Campo Schneider, J. Barrirero, C. Pauly, A. Guitar, F. Mücklich
Correlative Site-Specific Sample Preparation for Atom Probe Tomography on Complex Microstructures
(2021) *Microscopy and Microanalysis* 1-10
DOI: 10.1017/S1431927621000581
33. F. Mücklich, H. H. Cloeren
Heinz-Hubert Cloeren appointed to the Practical Metallography Editorial Board
(2021) *Praktische Metallographie*, 58, 3 163-167
DOI: 10.1515/pm-2021-0102
34. P. A. Ramos, R. S. Coelho, H. C. Pinto, F. Soldera, F. Mücklich, P. P. Brito
Oxide Layer Evolution of Cast Fe₂₄Cr₁₂NiXNb Heat-Resistant Cast Steels at 900° C in Atmospheric Air
(2021) *Archives of Foundry Engineering* 119-124
DOI: 10.24425/afe.2021.136087
35. M. Mueller, D. Britz, F. Mücklich
MACHINE LEARNING FOR MICROSTRUCTURE CLASSIFICATION: HOW TO ASSIGN THE GROUND TRUTH
IN THE MOST OBJECTIVE WAY
(2021) *Adv. Mater. Process.* 179 16–21.
36. F. Scherff, J. Gola, S. Scholl, K. Srivastava, T. Staudt, D. Britz, F. Mücklich, S. Diebels
Numerical simulation of dual-phase steel based on real and virtual three-dimensional microstructures
(2021) *Continuum Mechanics and Thermodynamics* 33, 5 1989 - 2006
DOI: 10.1007/s00161-021-00980-x
37. A. B. B. Chaar, L. Rogström, M. P. Johansson-Jöesaar, J. Barrirero, H. Aboufadel, N. Schell, D. Ostach,
F. Mücklich, M. Odén
Microstructural influence of the thermal behavior of arc deposited TiAlN coatings with high aluminum
content
(2021) *J. Alloys Compd.* 854 157205.
DOI: 10.1016/j.jallcom.2020.157205
38. S. Slawik, S. Bernarding, F. Lasagni, C. Navarro, A. Perriñán, F. Bobby, S. Migot-Choux, J. Dominguez,
F. Mücklich
Microstructural analysis of selective laser melted Ti6Al4V modified by laser peening and shot peening
for enhanced fatigue characteristics
(2021) *Mater. Charact.* 173 110935.
DOI: 10.1016/j.matchar.2021.110935
39. P. A. Ramos, R. S. Coelho, H. C. Pinto, F. Soldera, F. Mücklich, P. P. Brito
Microstructure and cyclic oxidation behavior of modified Nb-alloyed A297 HH refractory austenitic
stainless steel
(2021) *Mater. Chem. Phys.* 263 124361.
DOI: 10.1016/j.matchemphys.2021.124361
40. D. E. Diaz-Droguett, E. Ramos-Moore, M. Roble, F. Mücklich
Study of thermally induced phase transformations and microstructural changes in porous MoO₃
nanostructures for the design of tribological additives
(2021) *Mater. Lett.* 129502.
DOI:10.1016/j.matlet.2021.129502
41. J. Ott, A. Burghardt, D. Britz, F. Mücklich
Influence of porosity and impurities on the thermal conductivity of pressure-less sintered Cu powder
green bodies
(2021) *Powder Metall.* 1–12.
DOI: 10.1080/00325899.2021.1871806

42. J. Ott, A. Burghardt, D. Britz, S. Majauskaite, F. Mücklich
Qualitative and Quantitative Microstructural Analysis of Copper for Sintering Process Optimization in Additive Manufacturing Applications
(2021) Practical Metallography 58 32–47.
DOI: /10.1515/pm-2020-0002

43. J. Weibel, L. Weber, E. Vardo, D. Britz, T. Kraus, F. Mücklich
Particle encapsulation techniques for atom probe tomography of precipitates in microalloyed steels
(2021) Ultramicroscopy. 223 113219
DOI: 10.1016/j.ultramic.2021.113219