

Franz Roters

List of Publications by Citations

Source: <https://exaly.com/author-pdf/6749497/franz-roters-publications-by-citations.pdf>

Version: 2024-04-19

This document has been generated based on the publications and citations recorded by exaly.com. For the latest version of this publication list, visit the link given above.

The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

122
papers

8,418
citations

48
h-index

91
g-index

128
ext. papers

9,650
ext. citations

4.9
avg, IF

6.21
L-index

#	Paper	IF	Citations
122	Overview of constitutive laws, kinematics, homogenization and multiscale methods in crystal plasticity finite-element modeling: Theory, experiments, applications. <i>Acta Materialia</i> , 2010 , 58, 1152-1214	8.4	1239
121	Revealing the strain-hardening behavior of twinning-induced plasticity steels: Theory, simulations, experiments. <i>Acta Materialia</i> , 2013 , 61, 494-510	8.4	357
120	Micromechanical and macromechanical effects in grain scale polycrystal plasticity experimentation and simulation. <i>Acta Materialia</i> , 2001 , 49, 3433-3441	8.4	341
119	Strain localization and damage in dual phase steels investigated by coupled in-situ deformation experiments and crystal plasticity simulations. <i>International Journal of Plasticity</i> , 2014 , 63, 198-210	7.6	320
118	Work hardening in heterogeneous alloys – microstructural approach based on three internal state variables. <i>Acta Materialia</i> , 2000 , 48, 4181-4189	8.4	318
117	A dislocation density based constitutive model for crystal plasticity FEM including geometrically necessary dislocations. <i>Acta Materialia</i> , 2006 , 54, 2169-2179	8.4	264
116	A spectral method solution to crystal elasto-viscoplasticity at finite strains. <i>International Journal of Plasticity</i> , 2013 , 46, 37-53	7.6	263
115	The role of heterogeneous deformation on damage nucleation at grain boundaries in single phase metals. <i>International Journal of Plasticity</i> , 2009 , 25, 1655-1683	7.6	255
114	Three-dimensional investigation of the texture and microstructure below a nanoindent in a Cu single crystal using 3D EBSD and crystal plasticity finite element simulations. <i>Acta Materialia</i> , 2006 , 54, 1863-1876	8.4	247
113	DAMASK – The Düsseldorf Advanced Material Simulation Kit for modeling multi-physics crystal plasticity, thermal, and damage phenomena from the single crystal up to the component scale. <i>Computational Materials Science</i> , 2019 , 158, 420-478	3.2	237
112	Integrated experimental–simulation analysis of stress and strain partitioning in multiphase alloys. <i>Acta Materialia</i> , 2014 , 81, 386-400	8.4	221
111	Orientation dependence of nanoindentation pile-up patterns and of nanoindentation microtextures in copper single crystals. <i>Acta Materialia</i> , 2004 , 52, 2229-2238	8.4	202
110	A constitutive model for fcc single crystals based on dislocation densities and its application to uniaxial compression of aluminium single crystals. <i>Acta Materialia</i> , 2004 , 52, 3603-3612	8.4	183
109	On the consideration of interactions between dislocations and grain boundaries in crystal plasticity finite element modeling – Theory, experiments, and simulations. <i>Acta Materialia</i> , 2006 , 54, 2181-2194	8.4	172
108	Theory of orientation gradients in plastically strained crystals. <i>Acta Materialia</i> , 2002 , 50, 421-440	8.4	165
107	Using texture components in crystal plasticity finite element simulations. <i>International Journal of Plasticity</i> , 2004 , 20, 339-361	7.6	158
106	Numerically robust spectral methods for crystal plasticity simulations of heterogeneous materials. <i>International Journal of Plasticity</i> , 2015 , 66, 31-45	7.6	136

105	DAMASK: the D ü seldorf Advanced MAterial Simulation Kit for studying crystal plasticity using an FE based or a spectral numerical solver. <i>Procedia IUTAM</i> , 2012 , 3, 3-10		132
104	A crystal plasticity model for twinning- and transformation-induced plasticity. <i>Acta Materialia</i> , 2016 , 118, 140-151	8.4	127
103	A virtual laboratory using high resolution crystal plasticity simulations to determine the initial yield surface for sheet metal forming operations. <i>International Journal of Plasticity</i> , 2016 , 80, 111-138	7.6	107
102	Unraveling the temperature dependence of the yield strength in single-crystal tungsten using atomistically-informed crystal plasticity calculations. <i>International Journal of Plasticity</i> , 2016 , 78, 242-265	7.6	100
101	Effects of initial orientation, sample geometry and friction on anisotropy and crystallographic orientation changes in single crystal microcompression deformation: A crystal plasticity finite element study. <i>Acta Materialia</i> , 2007 , 55, 4567-4583	8.4	99
100	Smaller is stronger: The effect of strain hardening. <i>Acta Materialia</i> , 2009 , 57, 5996-6005	8.4	98
99	Orientation dependence of shear banding in face-centered-cubic single crystals. <i>Acta Materialia</i> , 2012 , 60, 3415-3434	8.4	97
98	On the origin of deformation-induced rotation patterns below nanoindents. <i>Acta Materialia</i> , 2008 , 56, 31-42	8.4	94
97	An integrated crystal plasticity-phase field model for spatially resolved twin nucleation, propagation, and growth in hexagonal materials. <i>International Journal of Plasticity</i> , 2018 , 106, 203-227	7.6	93
96	Microstructure and texture evolution in dual-phase steels: Competition between recovery, recrystallization, and phase transformation. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2010 , 527, 4161-4168	5.3	93
95	Dislocation density distribution around an indent in single-crystalline nickel: Comparing nonlocal crystal plasticity finite-element predictions with experiments. <i>Acta Materialia</i> , 2014 , 71, 333-348	8.4	86
94	Applying the texture analysis for optimizing thermomechanical treatment of high manganese twinning-induced plasticity steel. <i>Acta Materialia</i> , 2014 , 80, 327-340	8.4	83
93	Crystal plasticity simulation study on the influence of texture on earing in steel. <i>Computational Materials Science</i> , 2005 , 34, 221-234	3.2	76
92	Recrystallization behavior of a high-manganese steel: Experiments and simulations. <i>Acta Materialia</i> , 2015 , 100, 155-168	8.4	72
91	2010 ,		72
90	The mechanical size effect as a mean-field breakdown phenomenon: Example of microscale single crystal beam bending. <i>Acta Materialia</i> , 2010 , 58, 1876-1886	8.4	71
89	Dislocation mechanism based size-dependent crystal plasticity modeling and simulation of gradient nano-grained copper. <i>International Journal of Plasticity</i> , 2019 , 113, 52-73	7.6	69
88	Elasto-viscoplastic phase field modelling of anisotropic cleavage fracture. <i>Journal of the Mechanics and Physics of Solids</i> , 2017 , 99, 19-34	5	67

87	In situ observation of collective grain-scale mechanics in Mg and Mg rare earth alloys. <i>Acta Materialia</i> , 2014 , 80, 77-93	8.4	66
86	Non-crystallographic shear banding in crystal plasticity FEM simulations: Example of texture evolution in Brass. <i>Acta Materialia</i> , 2012 , 60, 1099-1115	8.4	65
85	A texture optimization study for minimum earing in aluminium by use of a texture component crystal plasticity finite element method. <i>Acta Materialia</i> , 2004 , 52, 1003-1012	8.4	65
84	Temperature dependent strain hardening and fracture behavior of TWIP steel. <i>International Journal of Plasticity</i> , 2018 , 104, 80-103	7.6	64
83	Dislocation interactions and low-angle grain boundary strengthening. <i>Acta Materialia</i> , 2011 , 59, 7125-7184	8.4	64
82	Simulation of dislocation penetration through a general low-angle grain boundary. <i>Acta Materialia</i> , 2012 , 60, 5380-5390	8.4	62
81	Concepts for Integrating Plastic Anisotropy into Metal Forming Simulations. <i>Advanced Engineering Materials</i> , 2002 , 4, 169-180	3.5	61
80	A phase field model for damage in elasto-viscoplastic materials. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2016 , 312, 167-185	5.7	57
79	A dislocation density based constitutive law for BCC materials in crystal plasticity FEM. <i>Computational Materials Science</i> , 2007 , 39, 91-95	3.2	54
78	Studying the effect of grain boundaries in dislocation density based crystal-plasticity finite element simulations. <i>International Journal of Solids and Structures</i> , 2006 , 43, 7287-7303	3.1	54
77	Simulation of shear banding in heterophase co-deformation: Example of plane strain compressed CuAg and CuNb metal matrix composites. <i>Acta Materialia</i> , 2013 , 61, 4591-4606	8.4	53
76	Virtual material testing for stamping simulations based on polycrystal plasticity. <i>Computational Materials Science</i> , 2009 , 46, 383-392	3.2	52
75	Selecting a set of discrete orientations for accurate texture reconstruction. <i>Computational Materials Science</i> , 2008 , 42, 670-678	3.2	49
74	Identifying Structure-Property Relationships Through DREAM.3D Representative Volume Elements and DAMASK Crystal Plasticity Simulations: An Integrated Computational Materials Engineering Approach. <i>Jom</i> , 2017 , 69, 848-855	2.1	46
73	Crystal plasticity study on stress and strain partitioning in a measured 3D dual phase steel microstructure. <i>Physical Mesomechanics</i> , 2017 , 20, 311-323	1.6	42
72	Interfacial dislocation motion and interactions in single-crystal superalloys. <i>Acta Materialia</i> , 2014 , 79, 216-233	8.4	42
71	Current Challenges and Opportunities in Microstructure-Related Properties of Advanced High-Strength Steels. <i>Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science</i> , 2020 , 51, 5517-5586	2.3	42
70	A Finite Element approach with patch projection for strain gradient plasticity formulations. <i>International Journal of Plasticity</i> , 2007 , 23, 690-710	7.6	39

69	Simulation of earing of a 17% Cr stainless steel considering texture gradients. <i>Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing</i> , 2008 , 488, 482-490	5.3	38
68	Simulation of earing during deep drawing of an Al3% Mg alloy (AA 5754) using a texture component crystal plasticity FEM. <i>Journal of Materials Processing Technology</i> , 2007 , 183, 169-175	5.3	35
67	Coupled Crystal Plasticity/Phase Field Fracture Simulation Study on Damage Evolution Around a Void: Pore Shape Versus Crystallographic Orientation. <i>Jom</i> , 2017 , 69, 872-878	2.1	32
66	Experimental/numerical study on strain and stress partitioning in bainitic steels with martensite/austenite constituents. <i>International Journal of Plasticity</i> , 2018 , 104, 39-53	7.6	30
65	Anisotropic polycrystal plasticity due to microstructural heterogeneity: A multi-scale experimental and numerical study on additively manufactured metallic materials. <i>Acta Materialia</i> , 2020 , 185, 340-369	8.4	30
64	Neighborhood influences on stress and strain partitioning in dual-phase microstructures. <i>Meccanica</i> , 2016 , 51, 429-441	2.1	30
63	Constitutive modeling of strain induced grain boundary migration via coupling crystal plasticity and phase-field methods. <i>International Journal of Plasticity</i> , 2017 , 99, 19-42	7.6	27
62	Bending of single crystal microcantilever beams of cube orientation: Finite element model and experiments. <i>Journal of the Mechanics and Physics of Solids</i> , 2010 , 58, 1599-1612	5	26
61	Multiscale simulation of polycrystal mechanics of textured Ti alloys using ab initio and crystal-based finite element methods. <i>Physica Status Solidi (B): Basic Research</i> , 2008 , 245, 2642-2648	1.3	24
60	Comparison of Single Crystal Simple Shear Deformation Experiments with Crystal Plasticity Finite Element Simulations. <i>Advanced Engineering Materials</i> , 2004 , 6, 653-656	3.5	24
59	Application of crystal plasticity FEM from single crystal to bulk polycrystal. <i>Computational Materials Science</i> , 2005 , 32, 509-517	3.2	23
58	Microstructure-based multiscale modeling of large strain plastic deformation by coupling a full-field crystal plasticity-spectral solver with an implicit finite element solver. <i>International Journal of Plasticity</i> , 2020 , 125, 97-117	7.6	22
57	Analysis of the plastic anisotropy and pre-yielding of (Ti)-phase titanium aluminide microstructures by crystal plasticity simulation. <i>Intermetallics</i> , 2011 , 19, 820-827	3.5	21
56	Comparison of texture evolution in fcc metals predicted by various grain cluster homogenization schemes. <i>International Journal of Materials Research</i> , 2009 , 100, 500-509	0.5	21
55	Application of a dislocation model for FE-process simulation. <i>Computational Materials Science</i> , 2001 , 21, 1-8	3.2	21
54	Ab initio-guided design of twinning-induced plasticity steels. <i>MRS Bulletin</i> , 2016 , 41, 320-325	3.2	21
53	A new concept for the calculation of the mobile dislocation density in constitutive models of strain hardening. <i>Physica Status Solidi (B): Basic Research</i> , 2003 , 240, 68-74	1.3	20
52	Development and application of constitutive equations for the multiple-stand hot rolling of Al-alloys. <i>Journal of Materials Processing Technology</i> , 2002 , 123, 155-166	5.3	17

51	FFT-based interface decohesion modelling by a nonlocal interphase. <i>Advanced Modeling and Simulation in Engineering Sciences</i> , 2018 , 5,	2.7	16
50	A finite element method on the basis of texture components for fast predictions of anisotropic forming operations. <i>Steel Research = Archiv für Das Eisenhüttenwesen</i> , 2001 , 72, 421-426		16
49	Crystal plasticity study of monocrystalline stochastic honeycombs under in-plane compression. <i>Acta Materialia</i> , 2016 , 103, 796-808	8.4	14
48	Multiscale Modelling of Hydrogen Transport and Segregation in Polycrystalline Steels. <i>Metals</i> , 2018 , 8, 430	2.3	13
47	Numerical study of textures and Lankford values for FCC polycrystals by use of a modified Taylor model. <i>Computational Materials Science</i> , 2004 , 29, 353-361	3.2	13
46	Using spectral-based representative volume element crystal plasticity simulations to predict yield surface evolution during large scale forming simulations. <i>Journal of Materials Processing Technology</i> , 2020 , 277, 116449	5.3	13
45	Understanding the mechanisms of electroplasticity from a crystal plasticity perspective. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2019 , 27, 085006	2	12
44	An FFT-based spectral solver for interface decohesion modelling using a gradient damage approach. <i>Computational Mechanics</i> , 2020 , 65, 925-939	4	11
43	Texture Evolution During Bending of a Single Crystal Copper Nanowire Studied by EBSD and Crystal Plasticity Finite Element Simulations. <i>Advanced Engineering Materials</i> , 2008 , 10, 737-741	3.5	10
42	Assessing and ensuring parameter identifiability for a physically-based strain hardening model for twinning-induced plasticity. <i>Mechanics of Materials</i> , 2015 , 84, 127-139	3.3	9
41	On the Modeling of Dual Phase Steels: Microstructure-based Simulation from the Hot Rolled Sheet to the Deep Drawn Component. <i>International Journal of Material Forming</i> , 2010 , 3, 73-76	2	8
40	Spontaneous Dislocation Annihilation Explains the Breakdown of the Power Law of Steady State Deformation. <i>Physica Status Solidi A</i> , 2001 , 184, 257-261		8
39	Microstructure Evolution during Recrystallization in Dual-Phase Steels. <i>Materials Science Forum</i> , 2012 , 715-716, 13-22	0.4	7
38	Iso-Work-Rate Weighted-Taylor Homogenization Scheme for Multiphase Steels Assisted by Transformation-induced Plasticity Effect. <i>Steel Research International</i> , 2007 , 78, 777-783	1.6	7
37	On the role of the collinear dislocation interaction in deformation patterning and laminate formation in single crystal plasticity. <i>Mechanics of Materials</i> , 2018 , 125, 70-79	3.3	6
36	Simulation of Earing during Deep Drawing of bcc Steel by Use of a Texture Component Crystal Plasticity Finite Element Method. <i>Materials Science Forum</i> , 2005 , 495-497, 1529-1534	0.4	6
35	A Texture Evolution Study Using the Texture Component Crystal Plasticity FEM. <i>Materials Science Forum</i> , 2005 , 495-497, 937-944	0.4	6
34	A Texture Component Crystal Plasticity Finite Element Method for Physically-Based Metal Forming Simulations Including Texture Update. <i>Materials Science Forum</i> , 2002 , 396-402, 31-38	0.4	6

33	Spectral Solvers for Crystal Plasticity and Multi-physics Simulations 2019 , 1347-1372		6
32	Development of a Model for Dynamic Recrystallization Consistent with the Second Derivative Criterion. <i>Materials</i> , 2017 , 10,	3.5	5
31	Linking atomistic, kinetic Monte Carlo and crystal plasticity simulations of single-crystal tungsten strength. <i>GAMM Mitteilungen</i> , 2015 , 38, 213-227	1.8	5
30	Experimental and numerical investigations of the plane strain compression of an oligocrystalline pure copper specimen. <i>Journal of Materials Processing Technology</i> , 2011 , 211, 1305-1323	5.3	5
29	On strain gradients and size-dependent hardening descriptions in crystal plasticity frameworks. <i>Metals and Materials International</i> , 2006 , 12, 407-411	2.4	5
28	Determination and analysis of the constitutive parameters of temperature-dependent dislocation-density-based crystal plasticity models. <i>Mechanics of Materials</i> , 2021 , 104117	3.3	5
27	Solving Material Mechanics and Multiphysics Problems of Metals with Complex Microstructures Using DAMASK—the Düsseldorf Advanced Material Simulation Kit. <i>Advanced Engineering Materials</i> , 2020 , 22, 1901044	3.5	5
26	Microstructural Influences on Fracture at Prior Austenite Grain Boundaries in Dual-Phase Steels. <i>Materials</i> , 2019 , 12,	3.5	5
25	A Flexible and Efficient Output File Format for Grain-Scale Multiphysics Simulations. <i>Integrating Materials and Manufacturing Innovation</i> , 2017 , 6, 83-91	2.9	4
24	Analytical bounds of in-plane Young's modulus and full-field simulations of two-dimensional monocrystalline stochastic honeycomb structures. <i>Computational Materials Science</i> , 2015 , 109, 323-329	3.2	4
23	Texture prediction from a novel grain cluster-based homogenization scheme. <i>International Journal of Material Forming</i> , 2009 , 2, 523-526	2	4
22	Relaxed grain cluster (RGC) homogenization scheme. <i>International Journal of Material Forming</i> , 2009 , 2, 939-942	2	4
21	Spectral Solvers for Crystal Plasticity and Multi-physics Simulations 2018 , 1-27		4
20	Quantification of 3D spatial correlations between state variables and distances to the grain boundary network in full-field crystal plasticity spectral method simulations. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2020 , 28, 055005	2	3
19	EBSD Study of Substructure and Texture Formation in Dual-Phase Steel Sheets for Semi-Finished Products. <i>Solid State Phenomena</i> , 2010 , 160, 251-256	0.4	3
18	A numerical study of the influence of crystal plasticity modeling parameters on the plastic anisotropy of rolled aluminum sheet. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2020 , 28, 085005	2	3
17	Large-deformation crystal plasticity simulation of microstructure and microtexture evolution through adaptive remeshing. <i>International Journal of Plasticity</i> , 2021 , 146, 103078	7.6	3
16	Spectral Solvers for Crystal Plasticity and Multi-physics Simulations 2019 , 1-26		2

15	Lath Martensite Microstructure Modeling: A High-Resolution Crystal Plasticity Simulation Study. <i>Materials</i> , 2021 , 14,	3.5	2
14	The through-process texture analysis of plate rolling by coupling finite element and fast Fourier transform crystal plasticity analysis. <i>Modelling and Simulation in Materials Science and Engineering</i> , 2019 , 27, 085005	2	1
13	Editorial Steel ab initio. <i>Steel Research International</i> , 2011 , 82, 85-85	1.6	1
12	Phase-Field Extension of Crystal Plasticity with Application to Hardening Modeling 2005 , 501-511		1
11	Yield locus prediction using statistical and RVE-based fast Fourier transform crystal plasticity models and validation for drawing steels. <i>Journal of Physics: Conference Series</i> , 2018 , 1063, 012051	0.3	1
10	Spectral Solvers for Crystal Plasticity and Multi-physics Simulations 2018 , 1-25		1
9	Modeling and simulation of microstructure in metallic systems based on multi-physics approaches. <i>Npj Computational Materials</i> , 2022 , 8,	10.9	1
8	Computer-Aided Material Design for Crash Boxes Made of High Manganese Steels. <i>Metals</i> , 2019 , 9, 772	2.3	0
7	Spectral Solvers for Crystal Plasticity and Multi-physics Simulations 2019 , 1-25		
6	Mapping the Crystal Orientation Distribution Function to Discrete Orientations in Crystal Plasticity Finite Element Forming Simulations of Bulk Materials. <i>Materials Science Forum</i> , 2006 , 519-521, 803-808	0.4	
5	Recent Progress in the 3D Experimentation and Simulation of Nanoindentations. <i>Materials Science Forum</i> , 2007 , 550, 199-204	0.4	
4	Mechanism Oriented Steel Development. <i>Steel Research International</i> , 2007 , 78, 195-198	1.6	
3	Characterizing Localized Microstructural Deformation of Multiphase Steel by Crystal Plasticity Simulation with Multi-Constitutive Law. <i>Journal of the Japan Society for Technology of Plasticity</i> , 2022 , 63, 1-8	0.3	
2	Crystal Plasticity Modeling 41-67		
1	Microstructure Modeling 2016 , 269-323		