Robert MaaÃ

List of Publications by Year
in descending order

82 papers	3,685 citations	117625 34 h-index	133252 59 g-index
83 all docs	83 docs citations	83 times ranked	2419 citing authors

#	Article	IF	Citations
1	Deformation response of ferrite and martensite in a dual-phase steel. Acta Materialia, 2014, 62, 197-211.	7.9	254
2	Shearâ€Band Dynamics in Metallic Glasses. Advanced Functional Materials, 2015, 25, 2353-2368.	14.9	190
3	Propagation dynamics of individual shear bands during inhomogeneous flow in a Zr-based bulk metallic glass. Acta Materialia, 2011, 59, 3205-3213.	7.9	181
4	Probing Shear-Band Initiation in Metallic Glasses. Physical Review Letters, 2011, 107, 185502.	7.8	135
5	On the Microstructure of Nanoporous Gold: An X-ray Diffraction Study. Nano Letters, 2009, 9, 1158-1163.	9.1	132
6	Micro-plasticity and recent insights from intermittent and small-scale plasticity. Acta Materialia, 2018, 143, 338-363.	7.9	119
7	Smaller is stronger: The effect of strain hardening. Acta Materialia, 2009, 57, 5996-6005.	7.9	115
8	Stickâ€“slip behavior of serrated flow during inhomogeneous deformation of bulk metallic glasses. Acta Materialia, 2010, 58, 3742-3750.	7.9	110
9	Stick-slip dynamics and recent insights into shear banding in metallic glasses. Journal of Materials Research, 2011, 26, 1453-1463.	2.6	105
10	Time-Resolved Laue Diffraction of Deforming Micropillars. Physical Review Letters, 2007, 99, 145505.	7.8	104
11	Shear-band thickness and shear-band cavities in a Zr-based metallic glass. Acta Materialia, 2017, 140, 206-216.	7.9	96
12	Long range stress fields and cavitation along a shear band in a metallic glass: The local origin of fracture. Acta Materialia, 2015, 98, 94-102.	7.9	93
13	A single shear band in a metallic glass: Local core and wide soft zone. Applied Physics Letters, 2014, 105, .	3.3	85
14	From Micro- to Macroplasticity. Advanced Materials, 2006, 18, 1545-1548.	21.0	79
15	Crystal rotation in Cu single crystal micropillars: <i>In situ</i> Laue and electron backscatter diffraction. Applied Physics Letters, 2008, 92, .	3.3	77
16	Linking macroscopic rejuvenation to nano-elastic fluctuations in a metallic glass. Acta Materialia, 2017, 138, 111-118.	7.9	76
17	Defect structure in micropillars using x-ray microdiffraction. Applied Physics Letters, 2006, 89, 151905.	3.3	74
18	Room Temperature Homogeneous Ductility of Micrometerâ€Sized Metallic Glass. Advanced Materials, 2014, 26, 5715-5721.	21.0	68

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19	Gamma relaxation in bulk metallic glasses. Scripta Materialia, 2017, 137, 5-8.	5.2	66
20	Temperature-dependent shear band dynamics in a Zr-based bulk metallic glass. Applied Physics Letters, 2010, 96, .	3.3	65
21	Slip statistics of dislocation avalanches under different loading modes. Physical Review E, 2015, 91, 042403.	2.1	63
22	Ultrahigh Strength of Dislocationâ€Free Ni₃Al Nanocubes. Small, 2012, 8, 1869-1875.	10.0	61
23	Single shear-band plasticity in a bulk metallic glass at cryogenic temperatures. Scripta Materialia, 2012, 66, 231-234.	5.2	57
24	In-situ characterization of the dislocation-structure evolution in Ni micro-pillars. Acta Materialia, 2012, 60, 1027-1037.	7.9	56
25	The Boson peak of model glass systems and its relation to atomic structure. European Physical Journal B, 2012, 85, 1.	1.5	52
26	Shear-band arrest and stress overshoots during inhomogeneous flow in a metallic glass. Applied Physics Letters, 2012, 100, .	3.3	52
27	Elastic Fluctuations and Structural Heterogeneities in Metallic Glasses. Advanced Functional Materials, 2018, 28, 1800388.	14.9	48
28	On the initial microstructure of metallic micropillars. Scripta Materialia, 2008, 59, 471-474.	5.2	46
29	Shear banding leads to accelerated aging dynamics in a metallic glass. Physical Review B, 2018, 97, .	3.2	43
30	Shapes and velocity relaxation of dislocation avalanches in Au and Nb microcrystals. Acta Materialia, 2018, 152, 86-95.	7.9	39
31	Structural dynamics and rejuvenation during cryogenic cycling in a Zr-based metallic glass. Acta Materialia, 2020, 196, 723-732.	7.9	38
32	In situ Laue diffraction of metallic micropillars. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2009, 524, 40-45.	5.6	37
33	On the plasticity of small-scale nickelâ€“titanium shape memory alloys. Scripta Materialia, 2010, 62, 492-495.	5.2	37
34	Small-scale plasticity: Insights into dislocation avalanche velocities. Scripta Materialia, 2013, 69, 586-589.	5.2	37
35	Energy Storage in Metallic Glasses via Flash Annealing. Advanced Functional Materials, 2018, 28, 1805385.	14.9	34
36	Unified Criterion for Temperature-Induced and Strain-Driven Glass Transitions in Metallic Glass. Physical Review Letters, 2015, 115, 135701.	7.8	33

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37	Rate-dependent shear-band initiation in a metallic glass. Applied Physics Letters, 2015, 106, .	3.3	33
38	Fatigue deformation of microsized metallic glasses. Scripta Materialia, 2013, 68, 773-776.	5.2	32
39	Strain induced fragility transition in metallic glass. Nature Communications, 2015, 6, 7179.	12.8	32
40	A strong micropillar containing a low angle grain boundary. Applied Physics Letters, 2007, 91, .	3.3	31
41	Micro-plasticity and intermittent dislocation activity in a simplified micro-structural model. Modelling and Simulation in Materials Science and Engineering, 2013, 21, 035007.	2.0	29
42	Compositional dependence of shear-band dynamics in the Zrâ€“Cuâ€“Al bulk metallic glass system. Applied Physics Letters, 2014, 104, 101910.	3.3	28
43	Dynamic properties of major shear bands in Zrâ€“Cuâ€“Al bulk metallic glasses. Acta Materialia, 2015, 96, 428-436.	7.9	28
44	Stress breaks universal aging behavior in a metallic glass. Nature Communications, 2019, 10, 5006.	12.8	28
45	Independence of Slip Velocities on Applied Stress in Small Crystals. Small, 2015, 11, 341-351.	10.0	26
46	Thermal processing and enthalpy storage of a binary amorphous solid: A molecular dynamics study. Journal of Materials Research, 2017, 32, 2668-2679.	2.6	26
47	Thermally-activated stress relaxation in a model amorphous solid and the formation of a system-spanning shear event. Acta Materialia, 2018, 143, 205-213.	7.9	25
48	Nontrivial scaling exponents of dislocation avalanches in microplasticity. Physical Review Materials, 2018, 2, .	2.4	25
49	Linking high- and low-temperature plasticity in bulk metallic glasses: thermal activation, extreme value statistics and kinetic freezing. Philosophical Magazine, 2013, 93, 4232-4263.	1.6	22
50	Spatiotemporal slip dynamics during deformation of gold micro-crystals. Acta Materialia, 2017, 122, 109-119.	7.9	22
51	Emergent structural length scales in a model binary glass - The micro-second molecular dynamics time-scale regime. Journal of Alloys and Compounds, 2020, 821, 153209.	5.5	22
52	Temperature rise from fracture in a Zr-based metallic glass. Applied Physics Letters, 2018, 112, .	3.3	19
53	Shear-band cavities and strain hardening in a metallic glass revealed with phase-contrast x-ray tomography. Scripta Materialia, 2019, 170, 29-33.	5.2	19
54	Linking high- and low-temperature plasticity in bulk metallic glasses II: use of a log-normal barrier energy distribution and a mean-field description of high-temperature plasticity. Philosophical Magazine, 2014, 94, 2776-2803.	1.6	17

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55	Shear-band structure and chemistry in a Zr-based metallic glass probed with nano-beam x-ray fluorescence and transmission electron microscopy. Scripta Materialia, 2019, 169, 23-27.	5.2	17
56	Strain-dependent shear-band structure in a Zr-based bulk metallic glass. Scripta Materialia, 2021, 190, 75-79.	5.2	17
57	Flaw-insensitive fracture of a micrometer-sized brittle metallic glass. Acta Materialia, 2021, 218, 117219.	7.9	17
58	The stress statistics of the first pop-in or discrete plastic event in crystal plasticity. Journal of Applied Physics, 2016, 120, .	2.5	16
59	Fast Slip Velocity in a High-Entropy Alloy. Jom, 2018, 70, 1088-1093.	1.9	16
60	Micro-plasticity in a fragile model binary glass. Acta Materialia, 2021, 209, 116771.	7.9	16
61	A probabilistic explanation for the size-effect in crystal plasticity. Philosophical Magazine, 2015, 95, 1829-1844.	1.6	15
62	Influence of hydrogen on the growth of FePt thin films. Journal of Applied Physics, 2006, 100, 073910.	2.5	14
63	Avalanche statistics and the intermittent-to-smooth transition in microplasticity. Physical Review Materials, 2019, 3, .	2.4	14
64	Thermal-activation model for freezing and the elastic robustness of bulk metallic glasses. Physical Review B, 2011, 84, .	3.2	12
65	Crystal size effect in two dimensions â€“ Influence of size and shape. Scripta Materialia, 2015, 102, 27-30.	5.2	12
66	Effects of orientation and pre-deformation on velocity profiles of dislocation avalanches in gold microcrystals. European Physical Journal B, 2019, 92, 1.	1.5	12
67	Universal power-law strengthening in metals?. Scripta Materialia, 2015, 109, 19-22.	5.2	10
68	Evidence of room-temperature shear-deformation in a Cu-Al intermetallic. Scripta Materialia, 2021, 190, 126-130.	5.2	10
69	Scale-dependent pop-ins in nanoindentation and scale-free plastic fluctuations in microcompression. Journal of Materials Research, 2020, 35, 196-205.	2.6	9
70	Mild-to-wild plastic transition is governed by athermal screw dislocation slip in bcc Nb. Nature Communications, 2022, 13, 1010.	12.8	9
71	Beyond Serrated Flow in Bulk Metallic Glasses: What Comes Next?. Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, 2020, 51, 5597-5605.	2.2	8
72	Early stages of liquid-metal embrittlement in an advanced high-strength steel. Materials Today Advances, 2022, 13, 100196.	5.2	7

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73	Local volume as a robust structural measure and its connection to icosahedral content in a model binary amorphous system. Materialia, 2018, 3, 97-106.	2.7	6
74	Microstructure and nanomechanical behavior of sputtered CuNb thin films. Intermetallics, 2021, 136, 107249.	3.9	6
75	Critical stress statistics and a fold catastrophe in intermittent crystal plasticity. Physical Review E, 2016, 94, 033001.	2.1	5
76	Microstructural signatures of dislocation avalanches in a high-entropy alloy. Physical Review Materials, 2021, 5, .	2.4	4
77	Viscosity and transport in a model fragile metallic glass. Physical Review Materials, 2021, 5, .	2.4	4
78	Applied-force oscillations in avalanche dynamics. Physical Review E, 2020, 101, 053003.	2.1	3
79	The Role of Disorder and the Elastic Robustness of Bulk Metallic Glasses. Materials Research Society Symposia Proceedings, 2012, 1520, 1.	0.1	2
80	Split-vacancy defect complexes of oxygen in hcp and fcc cobalt. Physical Review Materials, 2020, 4, .	2.4	1
81	<i>IN SITU</i> TIME RESOLVED LAUE DIFFRACTION DURING MICRO-COMPRESSION EXPERIMENTS. Advances in Synchrotron Radiation, 2008, 01, 151-157.	0.0	0
82	<i>In situ</i> thermal annealing transmission electron microscopy of irradiation induced Fe nanoparticle precipitation in Feâ€"Si alloy. Journal of Applied Physics, 2022, 131, 164902.	2.5	0