Karsten Durst

List of Publications by Year in Descending Order

134 papers	3,685 citations	35 h-index	56 g-index
137 ext. papers	4,342 ext. citations	4.9 avg, IF	5.7 L-index

#	Paper	IF	Citations
134	Nanoindentation creep testing: Advantages and limitations of the constant contact pressure method. *Journal of Materials Research*, **2022**, 37, 567-579	2.5	0
133	Bioinspired damage tolerant diamond-metal laminates by alternating CVD and PVD processes. *Materials and Design*, **2022**, 213, 110315	8.1	0
132	Effects of solutes on thermal stability, microstructure and mechanical properties in CrMnFeCoNi based alloys after high pressure torsion. *Acta Materialia*, **2022**, 227, 117689	8.4	0
131	Nanoindentation study of the oxide scale on FeCr alloy by high-pressure torsion. *Corrosion Science*, **2022**, 194, 109951	6.8	0
130	Room-temperature dislocation plasticity in SrTiO3 tuned by defect chemistry. *Journal of the American Ceramic Society*, **2022**, 105, 1318	3.8	1
129	Mechanical tailoring of dislocation densities in SrTiO 3 at room temperature. *Journal of the American Ceramic Society*, **2022**, 105, 2399-2402	3.8	1
128	Microstructure formation and mechanical properties of ODS steels built by laser additive manufacturing of nanoparticle coated iron-chromium powders. *Acta Materialia*, **2021**, 206, 116566	8.4	25
127	Solid solution hardening in CrMnFeCoNi-based high entropy alloy systems studied by a combinatorial approach. *Journal of Materials Research*, **2021**, 36, 2558-2570	2.5	3
126	Switching the fracture toughness of single-crystal ZnS using light irradiation. *Applied Physics Letters* , **2021**, 118, 154103	3.4	5
125	Nanoindentation pop-in in oxides at room temperature: Dislocation activation or crack formation?. *Journal of the American Ceramic Society*, **2021**, 104, 4728-4741	3.8	9
124	Control of polarization in bulk ferroelectrics by mechanical dislocation imprint. *Science*, **2021**, 372, 961-964	33	24
123	Heat treatment of the new high-strength high-ductility Al-Mg-Si-Mn alloys with Sc, Zr and Cr additions. *Materialia*, **2021**, 15, 100981	3.2	0
122	From diluted solid solutions to high entropy alloys: Saturation grain size and mechanical properties after high pressure torsion. *Scripta Materialia*, **2021**, 192, 43-48	5.6	2
121	Dislocation-toughened ceramics. *Materials Horizons*, **2021**, 8, 1528-1537	14.4	12
120	Dislocation–grain boundary interactions: recent advances on the underlying mechanisms studied via nanoindentation testing. *Journal of Materials Research*, **2021**, 36, 2545-2557	2.5	8
119	Thermally activated dislocation mechanism in Mo studied by indentation, compression and impact testing. *Journal of Materials Research*, **2021**, 36, 2397-2407	2.5	3
118	A simple way to make tough diamond/metal laminates. *Journal of the European Ceramic Society*, **2021**, 41, 5138-5146	6	1

117	Influence of microstructure on the application of Ni-Mn-In Heusler compounds for multicaloric cooling using magnetic field and uniaxial stress. *Acta Materialia*, **2021**, 217, 117157	8.4	2
116	Coating delamination analysis of diamond/Ti and diamond/Ti-6Al-4V systems using cohesive damage and extended finite element modeling. *Surface Topography: Metrology and Properties*, **2021**, 9, 035034	1.5	0
115	Dislocation-based crack initiation and propagation in single-crystal SrTiO3. *Journal of Materials Science*, **2021**, 56, 5479-5492	4.3	7
114	Tailoring the Mechanical Properties of Metaluminous Aluminosilicate Glasses by Phosphate Incorporation. *Frontiers in Materials*, **2020**, 7,	4	8
113	Indentation-Induced Structural Changes in Vitreous Silica Probed by in-situ Small-Angle X-Ray Scattering. *Frontiers in Materials*, **2020**, 7,	4	4
112	Local analysis on dislocation structure and hardening during grain boundary pop-ins in tungsten. *Journal of Materials Science*, **2020**, 55, 9597-9607	4.3	7
111	A Multiple Length-Scales Nanoimprinting Approach on Nanocrystalline and Strongly Deformed CuZn30 Alloys. *Scientific Reports*, **2020**, 10, 2454	4.9	4
110	Indentation densification of fused silica assessed by raman spectroscopy and constitutive finite element analysis. *Journal of the American Ceramic Society*, **2020**, 103, 3076-3088	3.8	12
109	Fracture toughness determination of fused silica by cube corner indentation cracking and pillar splitting. *Materials and Design*, **2020**, 186, 108311	8.1	14
108	Effect of nanoparticle additivation on the microstructure and microhardness of oxide dispersion strengthened steels produced by laser powder bed fusion and directed energy deposition. *Procedia CIRP*, **2020**, 94, 41-45	1.8	5
107	Multi-alloying effect of Sc, Zr, Cr on the Al-Mg-Si-Mn high-pressure die casting alloys. *Materials Characterization*, **2020**, 168, 110537	3.9	7
106	Influence of Al2O3 Addition on Structure and Mechanical Properties of Borosilicate Glasses. *Frontiers in Materials*, **2020**, 7,	4	5
105	Nanoscale to microscale reversal in room-temperature plasticity in SrTiO3 by tuning defect concentration. *Scripta Materialia*, **2020**, 188, 228-232	5.6	14
104	New ultra-high temperature nanoindentation system for operating at up to 1100□C. *Materials and Design*, **2020**, 192, 108727	8.1	15
103	Towards manufacturing of Nd-Fe-B magnets by continuous rotary swaging of cast alloy. *Journal of Magnetism and Magnetic Materials*, **2019**, 490, 165405	2.8	4
102	Effect of Zr, Cr and Sc on the Al□Mg□Si□Mn high-pressure die casting alloys. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2019**, 759, 603-612	5.3	32
101	Exploring the compositional parameter space of high-entropy alloys using a diffusion couple approach. *Materials and Design*, **2019**, 176, 107816	8.1	9
100	A review of experimental approaches to fracture toughness evaluation at the micro-scale. *Materials and Design*, **2019**, 173, 107762	8.1	99

99	New flat-punch indentation creep testing approach for characterizing the local creep properties at high temperatures. *Materials and Design*, **2019**, 183, 108090	8.1	8
98	A new nanoindentation creep technique using constant contact pressure. *Journal of Materials Research*, **2019**, 34, 2492-2500	2.5	8
97	Realization of Diamond/Metal Laminates through Brazing of Freestanding Diamond Foils. *Key Engineering Materials*, **2019**, 809, 309-313	0.4	1
96	Investigation of residual stress in lead-free BNT-based ceramic/ceramic composites. *Acta Materialia* , **2018**, 148, 432-441	8.4	19
95	Influence of solute effects on the saturation grain size and rate sensitivity in Cu-X alloys. *Scripta Materialia*, **2018**, 144, 5-8	5.6	14
94	Temperature dependence of indentation size effect, dislocation pile-ups, and lattice friction in (001) strontium titanate. *Journal of the American Ceramic Society*, **2018**, 101, 356-364	3.8	15
93	Study on the embrittlement of flash annealed Fe85.2B9.5P4Cu0.8Si0.5 metallic glass ribbons. *Materials and Design*, **2018**, 156, 252-261	8.1	17
92	Accelerated thermal degradation of DLC-coatings via growth defects. *Surface and Coatings Technology*, **2018**, 349, 272-278	4.4	7
91	Local Deformation of Glasses is Mediated by Rigidity Fluctuation on Nanometer Scale. *Advanced Science*, **2018**, 5, 1800916	13.6	44
90	Stress-driven grain boundary movement during nanoindentation in tungsten at room temperature. *Materialia*, **2018**, 1, 99-103	3.2	8
89	Indentation size effect in tungsten: Quantification of geometrically necessary dislocations underneath the indentations using HR-EBSD. *Materials Characterization*, **2018**, 142, 39-42	3.9	7
88	Constitutive modeling of indentation cracking in fused silica. *Journal of the American Ceramic Society*, **2017**, 100, 1928-1940	3.8	23
87	Preparation of dense SiHf(B)CN-based ceramic nanocomposites via rapid spark plasma sintering. *Journal of the European Ceramic Society*, **2017**, 37, 5157-5165	6	20
86	On the temperature dependent strengthening of nickel by transition metal solutes. *Acta Materialia*, **2017**, 137, 54-63	8.4	15
85	Influence of solid solution strengthening on the local mechanical properties of single crystal and ultrafine-grained binary Cu–Al X solid solutions. *Journal of Materials Research*, **2017**, 32, 4583-4591	2.5	8
84	Advanced Nanoindentation Testing for Studying Strain-Rate Sensitivity and Activation Volume. *Jom* , **2017**, 69, 2246-2255	2.1	41
83	Size-dependent fracture toughness of tungsten. *Acta Materialia*, **2017**, 138, 198-211	8.4	39
82	Indentation size effect and dislocation structure evolution in (001) oriented SrTiO 3 Berkovich indentations: HR-EBSD and etch-pit analysis. *Acta Materialia*, **2017**, 139, 1-10	8.4	32

81	3D Dislocation structure evolution in strontium titanate: Spherical indentation experiments and MD simulations. *Journal of the American Ceramic Society*, **2017**, 100, 1134-1145	3.8	23
80	Influence of Cooling Rate on Cracking and Plastic Deformation during Impact and Indentation of Borosilicate Glasses. *Frontiers in Materials*, **2017**, 4,	4	11
79	Fracture toughness evaluation of NiAl single crystals by microcantilevers□ new continuous J-integral method. *Journal of Materials Research*, **2016**, 31, 3786-3794	2.5	31
78	Temperature-Dependent Deformation and Dislocation Density in SrTiO3 (001) Single Crystals. *Journal of the American Ceramic Society*, **2016**, 99, 3411-3420	3.8	25
77	Effect of elastic anisotropy on strain relief and residual stress determination in cubic systems by FIB-DIC experiments. *Materials and Design*, **2016**, 112, 505-511	8.1	9
76	Composition and cooling-rate dependence of plastic deformation, densification, and cracking in sodium borosilicate glasses during pyramidal indentation. *Journal of Non-Crystalline Solids*, **2015**, 419, 97-109	3.9	29
75	Nanoindentation studies of the mechanical properties of the □phase in a creep deformed Re containing nickel-based superalloy. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2015**, 634, 202-208	5.3	52
74	Dynamic recovery in nanocrystalline Ni. *Acta Materialia*, **2015**, 91, 91-100	8.4	42
73	Synthesis and high-temperature evolution of polysilylcarbodiimide-derived SiCN ceramic coatings. *Journal of the European Ceramic Society*, **2015**, 35, 3771-3780	6	22
72	Enhancement of strain-rate sensitivity and shear yield strength of a magnesium alloy processed by high-pressure torsion. *Scripta Materialia*, **2015**, 94, 44-47	5.6	52
71	Microstructure-dependent deformation behaviour of bcc-metals □indentation size effect and strain rate sensitivity. *Philosophical Magazine*, **2015**, 95, 1766-1779	1.6	50
70	Dynamic nanoindentation testing for studying thermally activated processes from single to nanocrystalline metals. *Current Opinion in Solid State and Materials Science*, **2015**, 19, 340-353	12	72
69	Empirical-Statistical Study on the Relationship between Deposition Parameters, Process Variables, Deposition Rate and Mechanical Properties of a-C:H:W Coatings. *Coatings*, **2014**, 4, 772-795	2.9	11
68	Tailored Mechanical Properties and Residual Stresses of a-C:H:W Coatings. *Advanced Materials Research*, **2014**, 996, 14-21	0.5	2
67	Experimental and theoretical confirmation of the scaling exponent 2 in pyramidal load displacement data for depth sensing indentation. *Scanning*, **2014**, 36, 526-9	1.6	8
66	Microcantilever bending experiments in NiAl □Evaluation, size effects, and crack tip plasticity. *Journal of Materials Research*, **2014**, 29, 2129-2140	2.5	52
65	Influences of residual stresses on the serrated flow in bulk metallic glass under elastostatic four-point bending □A nanoindentation and atomic force microscopy study. *Acta Materialia*, **2014**, 70, 188-197	8.4	35
64	Nanoforming behaviour and microstructural evolution during nanoimprinting of ultrafine-grained and nanocrystalline metals. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2013**, 568, 68-75	5.3	11

63	Highly resolved analysis of the chemistry and mechanical properties of an a-C:H coating system by nanoindentation and auger electron spectroscopy. *Thin Solid Films*, **2013**, 528, 263-268	2.2	5
62	Influence of application technology on the erosion resistance of DLC coatings. *Surface and Coatings Technology*, **2013**, 237, 284-291	4.4	9
61	Assessment of stress relaxation experiments on diamond coatings analyzed by digital image correlation and micro-Raman spectroscopy. *Surface and Coatings Technology*, **2013**, 237, 255-260	4.4	9
60	Activation parameters for deformation of ultrafine-grained aluminium as determined by indentation strain rate jumps at elevated temperature. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2013**, 585, 108-113	5.3	75
59	A simple method for residual stress measurements in thin films by means of focused ion beam milling and digital image correlation. *Surface and Coatings Technology*, **2013**, 215, 247-252	4.4	61
58	An improved long-term nanoindentation creep testing approach for studying the local deformation processes in nanocrystalline metals at room and elevated temperatures. *Journal of Materials Research*, **2013**, 28, 1177-1188	2.5	114
57	Strain-Rate Sensitivity (SRS) of Nickel by Instrumented Indentation. *Conference Proceedings of the Society for Experimental Mechanics*, **2013**, 47-52	0.3	2
56	Determination of the interfacial strength and fracture toughness of a-C:H coatings by in-situ microcantilever bending. *Thin Solid Films*, **2012**, 522, 480-484	2.2	41
55	Failure mechanisms of a hydrogenated amorphous carbon coating in load-scanning tests. *Surface and Coatings Technology*, **2012**, 206, 4864-4871	4.4	9
54	Effect of thermal annealing on the mechanical properties of low-emissivity physical vapor deposited multilayer-coatings for architectural applications. *Thin Solid Films*, **2012**, 520, 7130-7135	2.2	16
53	Study on the deformation mechanics of hard brittle coatings on ductile substrates using in-situ tensile testing and cohesive zone FEM modeling. *Surface and Coatings Technology*, **2012**, 207, 163-169	4.4	38
52	Failure mechanisms of a tungsten-modified hydrogenated amorphous carbon coating in load-scanning tests. *Surface and Coatings Technology*, **2012**, 212, 46-54	4.4	6
51	Local Fracture Toughness and Residual Stress Measurements on NiAl Bond Coats by Micro Cantilever and FIB Based Bar Milling Tests **2012**, 93-102		4
50	Untersuchung des tribologisch-mechanischen Verhaltens amorpher Kohlenstoffschichten mittels Load Scanner. *Materialwissenschaft Und Werkstofftechnik*, **2012**, 43, 226-233	0.9	
49	In situ micro-cantilever tests to study fracture properties of NiAl single crystals. *Acta Materialia*, **2012**, 60, 1193-1200	8.4	109
48	The influence of hydrogenated amorphous carbon coatings (a-C:H) on the fatigue life of coated steel specimens. *International Journal of Fatigue*, **2012**, 37, 1-7	5	7
47	Comment to paper Penetration depth and tip radius dependence on the correction factor in nanoindentation measurements by J.M. Meza et al. [J. Mater. Res. 23(3), 725 (2008)]. *Journal of Materials Research*, **2012**, 27, 1205-1207	2.5	2
46	Experimental determination of the effective indenter shape and F factor for nanoindentation by continuously measuring the unloading stiffness. *Journal of Materials Research*, **2012**, 27, 214-221	2.5	21

45	Nanoindentation strain-rate jump tests for determining the local strain-rate sensitivity in nanocrystalline Ni and ultrafine-grained Al. *Journal of Materials Research*, **2011**, 26, 1421-1430	2.5	227
44	Stress evolution and cracking of crystalline diamond thin films on ductile titanium substrate: Analysis by micro-Raman spectroscopy and analytical modelling. *Acta Materialia*, **2011**, 59, 5422-5433	8.4	60
43	Influence of dislocation density on the pop-in behavior and indentation size effect in CaF2 single crystals: Experiments and molecular dynamics simulations. *Acta Materialia*, **2011**, 59, 4264-4273	8.4	85
42	Microscopic study on the interfacial strength of hydrogenated amorphous carbon coating systems. *Surface and Coatings Technology*, **2011**, 205, 3429-3433	4.4	9
41	Macro- and Nanomechanical Properties and Strain Rate Sensitivity of Accumulative Roll Bonded and Equal Channel Angular Pressed Ultrafine-Grained Materials. *Advanced Engineering Materials*, **2011**, 13, 251-255	3.5	29
40	Untersuchungen zur Ursache der Tropfenkondensation von Wasserdampf an ionenimplantierten Metalloberflächen. *Chemie-Ingenieur-Technik*, **2011**, 83, 545-551	0.8	5
39	Dynamic nanoindentation of articular porcine cartilage. *Materials Science and Engineering C*, **2011**, 31, 789-795	8.3	48
38	Compression moduli of foamed films of fluorinated ethylene propylene copolymers determined by nanoindentation. *Polymer Testing*, **2011**, 30, 286-293	4.5	2
37	Nano-mechanical testing in materials research and development. *Philosophical Magazine*, **2011**, 91, 1035-1036	1.8	1
36	Microstructural and micromechanical characterisation of a PtAlCrNiRe alloy by means of transmission electron microscopy and nanoindentation. *International Journal of Materials Research*, **2010**, 101, 585-588	0.5	2
35	Microimprinting of nanocrystalline metals – Influence of microstructure and work hardening. *Journal of Materials Processing Technology*, **2010**, 210, 1787-1793	5.3	13
34	The Influence of Particle Size on the Mechanical Properties of Dental Glass Ionomer Cements. *Advanced Engineering Materials*, **2010**, 12, B684-B689	3.5	4
33	SiC ceramic micropatterns from polycarbosilanes. *Journal of the European Ceramic Society*, **2010**, 30, 2773-2779	3.3	27
32	Micromechanics and ultrastructure of pyrolysed softwood cell walls. *Acta Biomaterialia*, **2010**, 6, 4345-51	10.8	25
31	Nanoindentation investigations to study solid solution hardening in Ni-based diffusion couples. *Journal of Materials Research*, **2009**, 24, 1127-1134	2.5	22
30	The correlation between the internal material length scale and the microstructure in nanoindentation experiments and simulations using the conventional mechanism-based strain gradient plasticity theory. *Journal of Materials Research*, **2009**, 24, 1197-1207	2.5	23
29	Stability of ultrafine-grained Cu to subgrain coarsening and recrystallization in annealing and deformation at elevated temperatures. *Acta Materialia*, **2009**, 57, 5207-5217	8.4	48
28	Development of new 11%Cr heat resistant ferritic steels with enhanced creep resistance for steam power plants with operating steam temperatures up to 650 °C. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2009**, 510-511, 180-184	5.3	38

27	Revealing deformation mechanisms with nanoindentation. *Jom*, **2009**, 61, 14-23	2.1	18
26	Particle Hardening in Creep-Resistant Mg-Alloy MRI 230D Probed by Nanoindenting Atomic Force Microscopy. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, **2009**, 40, 257-261	2.3	13
25	Coarsening of precipitates and degradation of creep resistance in tempered martensite steels. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing* , **2009**, 510-511, 81-87	5.3	38
24	In-situ investigation on the deformation and damage behaviour of diamond-like carbon coated thin films under uniaxial loading. *Thin Solid Films*, **2009**, 517, 1681-1685	2.2	19
23	In-situ tensile testing of crystalline diamond coatings using Raman spectroscopy. *Surface and Coatings Technology*, **2009**, 204, 1022-1025	4.4	22
22	Study on the indentation size effect in CaF2: Dislocation structure and hardness. *Acta Materialia*, **2009**, 57, 1281-1289	8.4	47
21	Quantification of dislocation structures at high resolution by atomic force microscopy of dislocation etch pits. *Philosophical Magazine Letters*, **2009**, 89, 391-398	1	4
20	Designing bulk metallic glass and glass matrix composites in martensitic alloys. *Journal of Alloys and Compounds*, **2009**, 483, 97-101	5.7	43
19	Indentation size effect in spherical and pyramidal indentations. *Journal Physics D: Applied Physics*, **2008**, 41, 074005	3	65
18	Cell-based resurfacing of large cartilage defects: long-term evaluation of grafts from autologous transgene-activated periosteal cells in a porcine model of osteoarthritis. *Arthritis and Rheumatism*, **2008**, 58, 475-88		55
17	Indentation size effect in Ni□e solid solutions. *Acta Materialia*, **2007**, 55, 6825-6833	8.4	74
16	Mechanical properties of hyaline and repair cartilage studied by nanoindentation. *Acta Biomaterialia*, **2007**, 3, 873-81	10.8	90
15	Microstructure and local mechanical properties of Pt-modified nickel aluminides on nickel-base superalloys after thermo-mechanical fatigue. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2007**, 467, 15-23	5.3	29
14	Investigation of the sliding contact properties of WC-Co hard metals using nanoscratch testing. *Wear*, **2007**, 263, 1602-1609	3.5	42
13	Impact of n-Type versus p-Type Doping on Mechanical Properties and Dislocation Evolution during SiC Crystal Growth. *Materials Science Forum*, **2007**, 556-557, 259-262	0.4	2
12	Study on the local damage mechanisms in WC-Co hard metals during scratch testing. *Materials Research Society Symposia Proceedings*, **2007**, 1049, 1		
11	Local Investigations of the Mechanical Properties of Ultrafine Grained Metals by Nanoindentations. *Materials Science Forum*, **2006**, 503-504, 31-36	0.4	17
10	Determination of plastic properties of polycrystalline metallic materials by nanoindentation: experiments and finite element simulations. *Philosophical Magazine*, **2006**, 86, 5541-5551	1.6	33

9	Indentation size effect in metallic materials: Modeling strength from pop-in to macroscopic hardness using geometrically necessary dislocations. *Acta Materialia*, **2006**, 54, 2547-2555	8.4	235
8	Indentation size effect in metallic materials: Correcting for the size of the plastic zone. *Scripta Materialia*, **2005**, 52, 1093-1097	5.6	283
7	Determination of Plastic Properties of Polycrystalline Metallic Materials by Nanoindentation - Experiments and Finite Element Simulations. *Materials Research Society Symposia Proceedings*, **2004** , 841, R11.4.1		1
6	Finite element study for nanoindentation measurements on two-phase materials. *Journal of Materials Research*, **2004**, 19, 85-93	2.5	78
5	Micromechanical characterisation of the influence of rhenium on the mechanical properties in nickel-base superalloys. *Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing*, **2004**, 387-389, 312-316	5.3	55
4	Finite element study for nanoindentation measurements on two-phase materials **2004**, 19, 85		1
3	Finite element simulation of spherical indentation in the elastic-plastic transition. *International Journal of Materials Research*, **2002**, 93, 857-861		13
2	Quantitative Gef□echararakterisierung mittels Rasterkraftmikroskopie und Elektronenmikroskopie □Eine vergleichende Studie der Superlegierung Waspaloy / Quantitative Microstructural Characterisation by Atomic Force Microscopy and Electron Microscopy -□A Comparative Study on the Superalloy Waspaloy. *Praktische Metallographie/Practical Metallography*, **2001**, 38, 197-215	0.3	7
1	Deformation of WC-Co Hardmetals During Scratch Testing171-177		