Matthias Bartosik

List of Publications by Year
in descending order

52 papers	1,593 citations	257357 24 h-index	315616 38 g-index
52 all docs	52 docs citations	52 times ranked	1232 citing authors

#	Article	IF	Citations
1	Superlattice effect for enhanced fracture toughness of hard coatings. Scripta Materialia, 2016, 124, 67-70.	2.6	128
2	X-ray nanodiffraction reveals strain and microstructure evolution in nanocrystalline thin films. Scripta Materialia, 2012, 67, 748-751.	2.6	103
3	Structural stability and thermodynamics of CrN magnetic phases fromab initiocalculations and experiment. Physical Review B, 2014, 90, .	1.1	95
4	Fracture toughness and structural evolution in the TiAlN system upon annealing. Scientific Reports, 2017, 7, 16476.	1.6	93
5	Size effect of thermal expansion and thermal/intrinsic stresses in nanostructured thin films: Experiment and model. Acta Materialia, 2011, 59, 6631-6645.	3.8	77
6	New insights on the formation of supersaturated solid solutions in the Cuâ€“Cr system deformed by high-pressure torsion. Acta Materialia, 2014, 69, 301-313.	3.8	73
7	Toughness enhancement in TiN/WN superlattice thin films. Acta Materialia, 2019, 172, 18-29.	3.8	72
8	Thermal expansion of Ti-Al-N and Cr-Al-N coatings. Scripta Materialia, 2017, 127, 182-185.	2.6	48
9	Structural and mechanical evolution of reactively and non-reactively sputtered Zrâ€“Alâ€“N thin films during annealing. Surface and Coatings Technology, 2014, 244, 52-56.	2.2	42
10	Influence of Ta on the fracture toughness of arc evaporated Ti-Al-N. Vacuum, 2018, 150, 24-28.	1.6	42
11	Fracture toughness of Ti-Si-N thin films. International Journal of Refractory Metals and Hard Materials, 2018, 72, 78-82.	1.7	40
12	Lateral gradients of phases, residual stress and hardness in a laser heated Ti0.52Al0.48N coating on hard metal. Surface and Coatings Technology, 2012, 206, 4502-4510.	2.2	37
13	Insight into the structural evolution during TiN film growth via atomic resolution TEM. Journal of Alloys and Compounds, 2018, 754, 257-267.	2.8	36
14	Fracture properties of thin film TiN at elevated temperatures. Materials and Design, 2020, 194, 108885.	3.3	36
15	Fracture toughness trends of modulus-matched TiN/(Cr,Al)N thin film superlattices. Acta Materialia, 2021, 202, 376-386.	3.8	35
16	Cross-sectional structure-property relationship in a graded nanocrystalline Ti1â^'xAlxN thin film. Acta Materialia, 2016, 102, 212-219.	3.8	34
17	Toughness of Si alloyed high-entropy nitride coatings. Materials Letters, 2019, 251, 238-240.	1.3	31
18	Crystallographic orientation dependent maximum layer thickness of cubic AlN in CrN/AlN multilayers. Acta Materialia, 2019, 168, 190-202.	3.8	31

#	Article	IF	Citations
19	Cross-sectional X-ray nanobeam diffraction analysis of a compositionally graded CrNx thin film. Thin Solid Films, 2013, 542, 1-4.	0.8	29
20	Correlating structural and mechanical properties of AlN/TiN superlattice films. Scripta Materialia, 2019, 165, 159-163.	2.6	29
21	Improved mechanical properties, thermal stabilities, and oxidation resistance of arc evaporated Ti-Al-N coatings through alloying with Ta. Surface and Coatings Technology, 2018, 344, 244-249.	2.2	28
22	Mechanistic study of superlattice-enabled high toughness and hardness in MoN/TaN coatings. Communications Materials, 2020, 1, .	2.9	27
23	Influence of coating thickness and substrate on stresses and mechanical properties of (Ti,Al,Ta)N/(Al,Cr)N multilayers. Surface and Coatings Technology, 2018, 347, 92-98.	2.2	26
24	Thermal expansion of rock-salt cubic AlN. Applied Physics Letters, 2015, 107, .	1.5	25
25	Annealing effect on the fracture toughness of CrN/TiN superlattices. International Journal of Refractory Metals and Hard Materials, 2018, 71, 352-356.	1.7	25
26	Mechanical properties and epitaxial growth of TiN/AlN superlattices. Surface and Coatings Technology, 2019, 375, 1-7.	2.2	25
27	Complementary ab initio and X-ray nanodiffraction studies of Ta2O5. Acta Materialia, 2015, 83, 276-284.	3.8	24
28	Correlating elemental distribution with mechanical properties of TiN/SiNx nanocomposite coatings. Scripta Materialia, 2019, 170, 20-23.	2.6	23
29	Influence of oxygen impurities on growth morphology, structure and mechanical properties of Tiâ€“Alâ€“N thin films. Thin Solid Films, 2016, 603, 39-49.	0.8	21
30	Thermal stability and mechanical properties of boron enhanced Moâ€“Si coatings. Surface and Coatings Technology, 2015, 280, 282-290.	2.2	19
31	Dislocation densities and alternating strain fields in CrN/AlN nanolayers. Thin Solid Films, 2017, 638, 189-200.	0.8	19
32	Atomic insights on intermixing of nanoscale nitride multilayer triggered by nanoindentation. Acta Materialia, 2021, 214, 117004.	3.8	19
33	Thermally-induced formation of hexagonal AlN in AlCrN hard coatings on sapphire: Orientation relationships and residual stresses. Surface and Coatings Technology, 2010, 205, 1320-1323.	2.2	18
34	Cross-sectional X-ray nano-diffraction and -reflectivity analysis of multilayered AlTiNâ€“TiSiN thin films: Correlation between residual strain and bi-layer period. Scripta Materialia, 2015, 107, 153-156.	2.6	18
35	Mechanical properties and oxidation resistance of Al-Cr-N/Ti-Al-Ta-N multilayer coatings. Surface and Coatings Technology, 2018, 347, 427-433.	2.2	18
36	Correlating point defects with mechanical properties in nanocrystalline TiN thin films. Materials and Design, 2021, 207, 109844.	3.3	18

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37	Influence of phase transformation on the damage tolerance of Ti-Al-N coatings. Vacuum, 2018, 155, 153-157.	1.6	15
38	In Situ High Temperature Xâ€Ray Diffraction Reveals Residual Stress Depthâ€Profiles in Blasted TiN Hard Coatings. Advanced Engineering Materials, 2011, 13, 705-711.	1.6	14
39	Superlattice-induced oscillations of interplanar distances and strain effects in the CrN/AlN system. Physical Review B, 2017, 95, .	1.1	13
40	Enhanced fracture toughness in ceramic superlattice thin films: On the role of coherency stresses and misfit dislocations. Materials and Design, 2021, 202, 109517.	3.3	13
41	Point-defect engineering of MoN/TaN superlattice films: A first-principles and experimental study. Materials and Design, 2020, 186, 108211.	3.3	11
42	Real-time atomic-resolution observation of coherent twin boundary migration in CrN. Acta Materialia, 2021, 208, 116732.	3.8	10
43	Interface controlled microstructure evolution in nanolayered thin films. Scripta Materialia, 2016, 123, 13-16.	2.6	9
44	Strain and stress analyses on thermally annealed Ti-Al-N/Mo-Si-B multilayer coatings by synchrotron X-ray diffraction. Surface and Coatings Technology, 2019, 361, 364-370.	2.2	9
45	Growth-twins in CrN/AlN multilayers induced by hetero-phase interfaces. Acta Materialia, 2020, 185, 157-170.	3.8	8
46	Indentation response of a superlattice thin film revealed by in-situ scanning X-ray nanodiffraction. Acta Materialia, 2020, 195, 425-432.	3.8	7
47	Mapping the mechanical properties in nitride coatings at the nanometer scale. Acta Materialia, 2020, 194, 343-353.	3.8	6
48	Atomic-scale understanding of the structural evolution of TiN/AlN superlattice during nanoindentationâ€" Part 1: Deformation. Acta Materialia, 2022, 234, 118008.	3.8	6
49	Mechanical properties of CrN-based superlattices: Impact of magnetism. Acta Materialia, 2021, 218, 117095.	3.8	5
50	Atomic-scale understanding of the structural evolution in TiN/AlN superlattice during nanoindentationâ€"Part 2: Strengthening. Acta Materialia, 2022, 234, 118009.	3.8	3
51	Macroscopic Fracture Behaviour of CrN Hard Coatings Evaluated by X-Ray Diffraction Coupled with Four-Point Bending. Materials Science Forum, 2013, 768-769, 272-279.	0.3	0
52	Toughness Enhancement in TiN/WN Superlattice Thin Films. SSRN Electronic Journal, 0, , .	0.4	0