

# Ivan G Petrov

## List of Publications by Year in descending order

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331  
papers

19,185  
citations

13087

68  
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14736

127  
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346  
all docs

346  
docs citations

346  
times ranked

13887  
citing authors

#	ARTICLE	IF	CITATIONS
1	Microstructural evolution during film growth. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2003, 21, S117-S128.	0.9	1,466
2	Stretchable batteries with self-similar serpentine interconnects and integrated wireless recharging systems. Nature Communications, 2013, 4, 1543.	5.8	1,169
3	A novel pulsed magnetron sputter technique utilizing very high target power densities. Surface and Coatings Technology, 1999, 122, 290-293.	2.2	910
4	Development of preferred orientation in polycrystalline TiN layers grown by ultrahigh vacuum reactive magnetron sputtering. Applied Physics Letters, 1995, 67, 2928-2930.	1.5	366
5	Pathways of atomistic processes on TiN(001) and (111) surfaces during film growth: an ab initio study. Journal of Applied Physics, 2003, 93, 9086-9094.	1.1	318
6	Microstructure modification of TiN by ion bombardment during reactive sputter deposition. Thin Solid Films, 1989, 169, 299-314.	0.8	308
7	Growth of Semiconducting Graphene on Palladium. Nano Letters, 2009, 9, 3985-3990.	4.5	307
8	Surface changes on LiNi <sub>0.8</sub> Co <sub>0.2</sub> O <sub>2</sub> particles during testing of high-power lithium-ion cells. Electrochemistry Communications, 2002, 4, 620-625.	2.3	295
9	Detection of Single Atoms and Buried Defects in Three Dimensions by Aberration-Corrected Electron Microscope with 0.5-Å... Information Limit. Microscopy and Microanalysis, 2008, 14, 469-477.	0.2	266
10	Interface microstructure engineering by high power impulse magnetron sputtering for the enhancement of adhesion. Journal of Applied Physics, 2007, 101, 054301.	1.1	247
11	High power pulsed magnetron sputtered CrN films. Surface and Coatings Technology, 2003, 163-164, 267-272.	2.2	242
12	Ionized sputter deposition using an extremely high plasma density pulsed magnetron discharge. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2000, 18, 1533-1537.	0.9	235
13	High-flux low-energy (20 eV) N <sup>2+</sup> ion irradiation during TiN deposition by reactive magnetron sputtering: Effects on microstructure and preferred orientation. Journal of Applied Physics, 1995, 78, 5395-5403.	1.1	229
14	Microscopy and Spectroscopy of Lithium Nickel Oxide-Based Particles Used in High Power Lithium-Ion Cells. Journal of the Electrochemical Society, 2003, 150, A1450.	1.3	219
15	Growth of poly- and single-crystal ScN on MgO(001): Role of low-energy N <sub>2</sub> <sup>+</sup> irradiation in determining texture, microstructure evolution, and mechanical properties. Journal of Applied Physics, 1998, 84, 6034-6041.	1.1	218
16	Polycrystalline TiN films deposited by reactive bias magnetron sputtering: Effects of ion bombardment on resputtering rates, film composition, and microstructure. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1992, 10, 265-272.	0.9	208
17	Average energy deposited per atom: A universal parameter for describing ion-assisted film growth?. Applied Physics Letters, 1993, 63, 36-38.	1.5	206
18	Crystal growth and microstructure of polycrystalline Ti <sub>1-x</sub> Al <sub>x</sub> N alloy films deposited by ultra-high-vacuum dual-target magnetron sputtering. Thin Solid Films, 1993, 235, 62-70.	0.8	193

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19	Self-organized nanocolumnar structure in superhard TiB <sub>2</sub> thin films. Applied Physics Letters, 2005, 86, 131909.	1.5	192
20	Highly Sensitive, Mechanically Stable Nanopore Sensors for DNA Analysis. Advanced Materials, 2009, 21, 2771-2776.	11.1	190
21	Microstructure and oxidation-resistance of Ti <sub>1-x-y-z</sub> Al <sub>x</sub> CryYzN layers grown by combined steered-arc/unbalanced-magnetron-sputter deposition. Surface and Coatings Technology, 1997, 94-95, 226-231.	2.2	189
22	Synthesis of metastable epitaxial zinc-blende structure AlN by solid-state reaction. Applied Physics Letters, 1992, 60, 2491-2493.	1.5	187
23	Use of an externally applied axial magnetic field to control ion/neutral flux ratios incident at the substrate during magnetron sputter deposition. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1992, 10, 3283-3287.	0.9	179
24	Mass and energy resolved detection of ions and neutral sputtered species incident at the substrate during reactive magnetron sputtering of Ti in mixed Ar+N <sub>2</sub> mixtures. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1994, 12, 2846-2854.	0.9	178
25	Long-Range and Local Structure in the Layered Oxide Li <sub>1.2</sub> Co <sub>0.4</sub> Mn <sub>0.4</sub> O <sub>2</sub> . Chemistry of Materials, 2011, 23, 2039-2050.	3.2	171
26	Effects of high-flux low-energy (20–100 eV) ion irradiation during deposition on the microstructure and preferred orientation of Ti <sub>0.5</sub> Al <sub>0.5</sub> N alloys grown by ultra-high-vacuum reactive magnetron sputtering. Journal of Applied Physics, 1993, 73, 8580-8589.	1.1	159
27	Interpretation of X-ray photoelectron spectra of carbon-nitride thin films: New insights from in situ XPS. Carbon, 2016, 108, 242-252.	5.4	158
28	Low-energy (~100 eV) ion irradiation during growth of TiN deposited by reactive magnetron sputtering: Effects of ion flux on film microstructure. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1991, 9, 434-438.	0.9	157
29	Local Structure of Layered Oxide Electrode Materials for Lithium-Ion Batteries. Advanced Materials, 2010, 22, 1122-1127.	11.1	152
30	Vacancy hardening in single-crystal TiN <sub>x</sub> (001) layers. Journal of Applied Physics, 2003, 93, 6025-6028.	1.1	146
31	Interface structure in superhard TiN-SiN nanolaminates and nanocomposites: Film growth experiments and ab initio calculations. Physical Review B, 2007, 75, .	1.1	142
32	Defect structure and phase transitions in epitaxial metastable cubic Ti <sub>0.5</sub> Al <sub>0.5</sub> N alloys grown on MgO(001) by ultra-high-vacuum magnetron sputter deposition. Journal of Applied Physics, 1991, 69, 6437-6450.	1.1	141
33	Local structure and composition studies of Li <sub>1.2</sub> Ni <sub>0.2</sub> Mn <sub>0.6</sub> O <sub>2</sub> by analytical electron microscopy. Journal of Power Sources, 2008, 178, 422-433.	4.0	141
34	Electronic structure of ScN determined using optical spectroscopy, photoemission, and ab initio calculations. Physical Review B, 2001, 63, .	1.1	139
35	Improving high-capacity Li <sub>1.2</sub> Ni <sub>0.15</sub> Mn <sub>0.55</sub> Co <sub>0.1</sub> O <sub>2</sub> -based lithium-ion cells by modifying the positive electrode with alumina. Journal of Power Sources, 2013, 233, 346-357.	4.0	139
36	Structure determination of individual single-wall carbon nanotubes by nanoarea electron diffraction. Applied Physics Letters, 2003, 82, 2703-2705.	1.5	137

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37	Electrochemically tunable thermal conductivity of lithium cobalt oxide. Nature Communications, 2014, 5, 4035.	5.8	137
38	Dense fully 111-textured TiN diffusion barriers: Enhanced lifetime through microstructure control during layer growth. Journal of Applied Physics, 1999, 86, 3633-3641.	1.1	125
39	Physico-chemical characterization of NF/RO membrane active layers by Rutherford backscattering spectrometry. Journal of Membrane Science, 2006, 282, 71-81.	4.1	120
40	Role of $Ti^{n+}$ and $Al^{n+}$ ion irradiation ( $n=1, 2$ ) during $Ti_{1-x}Al_xN$ alloy film growth in a hybrid HIPIMS/magnetron mode. Surface and Coatings Technology, 2012, 206, 4202-4211.	2.2	119
41	Growth, surface morphology, and electrical resistivity of fully strained substoichiometric epitaxial $TiN_x$ ( $0.67 < x < 1.0$ ) layers on MgO(001). Journal of Applied Physics, 2004, 95, 356-362.	1.1	118
42	Ion-assisted growth of $Ti_{1-x}Al_xN/Ti_{1-y}Nb_yN$ multilayers by combined cathodic-arc/magnetron-sputter deposition. Thin Solid Films, 1997, 302, 179-192.	0.8	117
43	Growth of single-crystal CrN on MgO(001): Effects of low-energy ion-irradiation on surface morphological evolution and physical properties. Journal of Applied Physics, 2002, 91, 3589-3597.	1.1	117
44	Band gap in epitaxial NaCl-structure CrN(001) layers. Journal of Applied Physics, 2002, 91, 5882-5886.	1.1	117
45	Microstructure and electronic properties of the refractory semiconductor ScN grown on MgO(001) by ultra-high-vacuum reactive magnetron sputter deposition. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1998, 16, 2411-2417.	0.9	112
46	Diagnosis of power fade mechanisms in high-power lithium-ion cells. Journal of Power Sources, 2003, 119-121, 511-516.	4.0	110
47	Phase composition and microstructure of polycrystalline and epitaxial $TaN_x$ layers grown on oxidized Si(001) and MgO(001) by reactive magnetron sputter deposition. Thin Solid Films, 2002, 402, 172-182.	0.8	109
48	Toughness enhancement in hard ceramic thin films by alloy design. APL Materials, 2013, 1, .	2.2	109
49	Metal versus rare-gas ion irradiation during $Ti_{1-x}Al_xN$ film growth by hybrid high power pulsed magnetron/dc magnetron co-sputtering using synchronized pulsed substrate bias. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2012, 30, .	0.9	98
50	Epitaxial and polycrystalline $HfN_x$ ( $0.8 < x < 1.5$ ) layers on MgO(001): Film growth and physical properties. Journal of Applied Physics, 2005, 97, 083521.	1.1	95
51	Paradigm shift in thin-film growth by magnetron sputtering: From gas-ion to metal-ion irradiation of the growing film. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2019, 37, .	0.9	94
52	Nanomachining carbon nanotubes with ion beams. Applied Physics Letters, 2004, 84, 4484-4486.	1.5	92
53	Epitaxial NaCl structure $\hat{\Gamma}$ - $TaN_x(001)$ : Electronic transport properties, elastic modulus, and hardness versus N/Ta ratio. Journal of Applied Physics, 2001, 90, 2879-2885.	1.1	88
54	Development of preferred orientation in polycrystalline NaCl-structure $\hat{\Gamma}$ -TaN layers grown by reactive magnetron sputtering: Role of low-energy ion surface interactions. Journal of Applied Physics, 2002, 92, 5084-5093.	1.1	87

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55	Epitaxial Sc <sub>1-x</sub> Ti <sub>x</sub> N(001): Optical and electronic transport properties. Journal of Applied Physics, 2001, 89, 401-409.	1.1	84
56	Growth and physical properties of epitaxial HfN layers on MgO(001). Journal of Applied Physics, 2004, 96, 878-884.	1.1	83
57	Transmission electron microscopy studies of microstructural evolution, defect structure, and phase transitions in polycrystalline and epitaxial Ti <sub>1-x</sub> Al <sub>x</sub> N and TiN films grown by reactive magnetron sputter deposition. Thin Solid Films, 1991, 205, 153-164.	0.8	80
58	Coherent nano-area electron diffraction. Microscopy Research and Technique, 2004, 64, 347-355.	1.2	79
59	Morphology of epitaxial TiN(001) grown by magnetron sputtering. Applied Physics Letters, 1997, 70, 1703-1705.	1.5	78
60	Elastic constants of single-crystal TiN <sub>x</sub> (001) (0.67 ≤ x ≤ 1.0) determined as a function of x by picosecond ultrasonic measurements. Physical Review B, 2005, 71, .	1.1	78
61	Moiré Superstructures of Graphene on Faceted Nickel Islands. ACS Nano, 2010, 4, 6509-6514.	7.3	78
62	Vacancy-induced toughening in hard single-crystal V <sub>0.5</sub> Mo <sub>0.5</sub> N <sub>x</sub> /MgO(001) thin films. Acta Materialia, 2014, 77, 394-400.	3.8	75
63	Multiscale Modeling of Thin-Film Deposition: Applications to Si Device Processing. MRS Bulletin, 2001, 26, 182-189.	1.7	74
64	Hydrogen uptake in alumina thin films synthesized from an aluminum plasma stream in an oxygen ambient. Applied Physics Letters, 1999, 74, 200-202.	1.5	73
65	Transfer of graphene layers grown on SiC wafers to other substrates and their integration into field effect transistors. Applied Physics Letters, 2009, 95, .	1.5	71
66	Dynamic and structural stability of cubic vanadium nitride. Physical Review B, 2015, 91, .	1.1	71
67	A review of the intrinsic ductility and toughness of hard transition-metal nitride alloy thin films. Thin Solid Films, 2019, 688, 137479.	0.8	71
68	Probing Interfacial Electronic Structures in Atomic Layer LaMnO <sub>3</sub> and SrTiO <sub>3</sub> Superlattices. Advanced Materials, 2010, 22, 1156-1160.	11.1	69
69	Strain-free, single-phase metastable Ti <sub>0.38</sub> Al <sub>0.62</sub> N alloys with high hardness: metal-ion energy vs. momentum effects during film growth by hybrid high-power pulsed/dc magnetron cosputtering. Thin Solid Films, 2014, 556, 87-98.	0.8	69
70	Microstructural evolution and Poisson ratio of epitaxial ScN grown on TiN(001)/MgO(001) by ultrahigh vacuum reactive magnetron sputter deposition. Journal of Applied Physics, 1999, 86, 5524-5529.	1.1	68
71	Structural study of Li <sub>2</sub> MnO <sub>3</sub> by electron microscopy. Journal of Materials Science, 2009, 44, 5579-5587.	1.7	68
72	Large-scale fabrication of hard superlattice thin films by combined steered arc evaporation and unbalanced magnetron sputtering. Surface and Coatings Technology, 1997, 93, 69-87.	2.2	67

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73	Influence of the bias voltage on the structure and the tribological performance of nanoscale multilayer C/Cr PVD coatings. <i>Thin Solid Films</i> , 2005, 475, 219-226.	0.8	66
74	Selection of metal ion irradiation for controlling Ti <sub>1-x</sub> Al <sub>x</sub> N alloy growth via hybrid HIPIMS/magnetron co-sputtering. <i>Vacuum</i> , 2012, 86, 1036-1040.	1.6	66
75	Growth and physical properties of epitaxial metastable cubic TaN(001). <i>Applied Physics Letters</i> , 1999, 75, 3808-3810.	1.5	65
76	Layer-by-Layer Transfer of Multiple, Large Area Sheets of Graphene Grown in Multilayer Stacks on a Single SiC Wafer. <i>ACS Nano</i> , 2010, 4, 5591-5598.	7.3	65
77	Analytical electron microscopy of Li <sub>1.2</sub> Co <sub>0.4</sub> Mn <sub>0.4</sub> O <sub>2</sub> for lithium-ion batteries. <i>Solid State Ionics</i> , 2011, 182, 98-107.	1.3	65
78	Improving the high-temperature oxidation resistance of TiB <sub>2</sub> thin films by alloying with Al. <i>Acta Materialia</i> , 2020, 196, 677-689.	3.8	65
79	Electrostatic Probe Measurements in the Glow Discharge Plasma of a D. C. Magnetron Sputtering System. <i>Contributions To Plasma Physics</i> , 1988, 28, 157-167.	0.5	62
80	In situ Transmission Electron Microscopy Studies Enabled by Microelectromechanical System Technology. <i>Journal of Materials Research</i> , 2005, 20, 1802-1807.	1.2	60
81	Influence of an external axial magnetic field on the plasma characteristics and deposition conditions during direct current planar magnetron sputtering. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 1994, 12, 314-320.	0.9	58
82	Highly oriented ZnO films obtained by d.c. reactive sputtering of a zinc target. <i>Thin Solid Films</i> , 1984, 120, 55-67.	0.8	57
83	Synthesis of linked carbon monolayers: Films, balloons, tubes, and pleated sheets. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 7353-7358.	3.3	57
84	Physical properties of epitaxial ZrN/MgO(001) layers grown by reactive magnetron sputtering. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2013, 31, .	0.9	56
85	Effects of phase stability, lattice ordering, and electron density on plastic deformation in cubic TiWN pseudobinary transition-metal nitride alloys. <i>Acta Materialia</i> , 2016, 103, 823-835.	3.8	56
86	Dependence of the electromechanical coupling on the degree of orientation of c-textured thin AlN films. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2004, 51, 1347-1353.	1.7	55
87	Comparison of magnetron sputter deposition conditions in neon, argon, krypton, and xenon discharges. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 1993, 11, 2733-2741.	0.9	54
88	Epitaxial Ti <sub>1-x</sub> W <sub>x</sub> N alloys grown on MgO(001) by ultrahigh vacuum reactive magnetron sputtering: Electronic properties and long-range cation ordering. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2003, 21, 140-146.	0.9	54
89	Raman scattering from TiN <sub>x</sub> (0.67 ≤ x ≤ 1.00) single crystals grown on MgO(001). <i>Journal of Applied Physics</i> , 2011, 110, .	1.1	54
90	Control of Ti <sub>1-x</sub> Si <sub>x</sub> N nanostructure via tunable metal-ion momentum transfer during HIPIMS/DCMS co-deposition. <i>Surface and Coatings Technology</i> , 2015, 280, 174-184.	2.2	53





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109	Elastic properties and plastic deformation of TiC- and VC-based pseudobinary alloys. <i>Acta Materialia</i> , 2018, 144, 376-385.	3.8	45
110	Absolute orientation-dependent TiN() step energies from two-dimensional equilibrium island shape and coarsening measurements on epitaxial TiN() layers. <i>Surface Science</i> , 2002, 513, 468-474.	0.8	44
111	Phase separation and formation of the self-organised layered nanostructure in C/Cr coatings in conditions of high ion irradiation. <i>Surface and Coatings Technology</i> , 2005, 200, 1572-1579.	2.2	42
112	Two-dimensional island dynamics: Role of step energy anisotropy. <i>Surface Science Reports</i> , 2006, 60, 55-77.	3.8	42
113	Electronic structure of the SiN $\langle \text{math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline">\langle \text{mml:mrow} \langle \text{mml:msub} \langle \text{mml:mrow} / \rangle \langle \text{mml:mrow} \langle \text{mml:mi} \rangle \text{x} \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:msub} \langle \text{mml:mrow} \langle \text{mml:math} \rangle \text{TiN} \text{ interface: A model system for superhard nanocomposites. } \text{Physical Review B. 2011. 83. .$	1.1	42
114	Strategy for simultaneously increasing both hardness and toughness in ZrB <sub>2</sub> -rich Zr <sub>1-x</sub> Ta <sub>x</sub> By thin films. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2019, 37, .	0.9	42
115	Interfacial reactions in epitaxial Al/Ti <sub>1-x</sub> Al <sub>x</sub> N (0 ≤ x ≤ 0.2) model diffusion barrier structures. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 1993, 11, 11-17.	0.9	41
116	Nitrogen-doped bcc-Cr films: Combining ceramic hardness with metallic toughness and conductivity. <i>Scripta Materialia</i> , 2016, 122, 40-44.	2.6	41
117	Epitaxial growth of metastable $\delta$ -TaN layers on MgO(001) using low-energy, high-flux ion irradiation during ultrahigh vacuum reactive magnetron sputtering. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2002, 20, 2007.	0.9	40
118	Absolute orientation-dependent anisotropic TiN(111) island step energies and stiffnesses from shape fluctuation analyses. <i>Physical Review B</i> , 2003, 67, .	1.1	40
119	Ti adatom diffusion on TiN(001): Ab initio and classical molecular dynamics simulations. <i>Surface Science</i> , 2014, 627, 34-41.	0.8	40
120	Controlling the boron-to-titanium ratio in magnetron-sputter-deposited TiB <sub>x</sub> thin films. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2017, 35, .	0.9	40
121	Effects of high-flux low-energy ion bombardment on the low-temperature growth morphology of TiN(001) epitaxial layers. <i>Physical Review B</i> , 2000, 61, 16137-16143.	1.1	39
122	Ab Initio Molecular Dynamics Simulations of Nitrogen/VN(001) Surface Reactions: Vacancy-Catalyzed N <sub>2</sub> Dissociative Chemisorption, N Adatom Migration, and N <sub>2</sub> Desorption. <i>Journal of Physical Chemistry C</i> , 2016, 120, 12503-12516.	1.5	39
123	3D-to-2D Morphology Manipulation of Sputter-Deposited Nanoscale Silver Films on Weakly Interacting Substrates via Selective Nitrogen Deployment for Multifunctional Metal Contacts. <i>ACS Applied Nano Materials</i> , 2020, 3, 4728-4738.	2.4	38
124	In situ high-temperature scanning tunneling microscopy studies of two-dimensional TiN island coarsening kinetics on TiN. <i>Surface Science</i> , 2003, 526, 85-96.	0.8	37
125	Dislocation-driven surface dynamics on solids. <i>Nature</i> , 2004, 429, 49-52.	13.7	37
126	Nucleation kinetics versus nitrogen partial pressure during homoepitaxial growth of stoichiometric TiN(001): A scanning tunneling microscopy study. <i>Surface Science</i> , 2005, 581, L122-127.	0.8	37



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127	Synergistic Compositions of Colloidal Nanodiamond as Lubricant-additive. Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics, 2010, 28, 869-877.	0.6	37
128	Design and characterization of a compact two-target ultrahigh vacuum magnetron sputter deposition system: Application to the growth of epitaxial Ti <sub>1-x</sub> Al <sub>x</sub> N alloys and TiN/Ti <sub>1-x</sub> Al <sub>x</sub> N superlattices. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1993, 11, 136-142.	0.9	36
129	Absolute TiN(111) Step Energies from Analysis of Anisotropic Island Shape Fluctuations. Physical Review Letters, 2002, 88, 146101.	2.9	36
130	Measurement and estimation of temperature rise in TEM sample during ion milling. Ultramicroscopy, 2007, 107, 663-668.	0.8	36
131	Raman scattering from epitaxial TaN <sub>x</sub> (0.94 ≤ x ≤ 1.37) layers grown on MgO(001). Journal of Applied Physics, 2007, 101, 123509.	1.1	35
132	Nanolabyrinthine ZrAlN thin films by self-organization of interwoven single-crystal cubic and hexagonal phases. APL Materials, 2013, 1, .	2.2	35
133	Strategy for tuning the average charge state of metal ions incident at the growing film during HIPIMS deposition. Vacuum, 2015, 116, 36-41.	1.6	34
134	Phonon and electron contributions to the thermal conductivity of $VN_x$ epitaxial layers. Physical Review Materials, 2017, 1, .	0.9	34
135	Origin of compositional variations in sputter-deposited Ti <sub>x</sub> W <sub>1-x</sub> diffusion barrier layers. Applied Physics Letters, 1995, 67, 3102-3104.	1.5	33
136	Structure and tribological behaviour of nanoscale multilayer C/Cr coatings deposited by the combined steered cathodic arc/unbalanced magnetron sputtering technique. Thin Solid Films, 2004, 447-448, 7-13.	0.8	33
137	Effect of Al adatom disorder effects on adatom mobilities on TiN(001) surfaces from first principles. Physical Review B, 2012, 85, .	1.1	33
138	Al capping layers for nondestructive x-ray photoelectron spectroscopy analyses of transition-metal nitride thin films. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2015, 33, .	0.9	33
139	Microstructure and materials properties of understoichiometric TiB <sub>x</sub> thin films grown by HiPIMS. Surface and Coatings Technology, 2020, 404, 126537.	2.2	33
140	Size-Dependent Detachment-Limited Decay Kinetics of Two-Dimensional TiN Islands on TiN(111). Physical Review Letters, 2002, 89, 176102.	2.9	32
141	Low-energy electron microscopy studies of interlayer mass transport kinetics on TiN(111). Surface Science, 2004, 560, 53-62.	0.8	32
142	The Formation and Utility of Sub-Angstrom to Nanometer-Sized Electron Probes in the Aberration-Corrected Transmission Electron Microscope at the University of Illinois. Microscopy and Microanalysis, 2010, 16, 183-193.	0.2	32
143	N and Ti adatom dynamics on stoichiometric polar TiN(111) surfaces. Surface Science, 2016, 649, 72-79.	0.8	32
144	In situ scanning tunneling microscopy studies of the evolution of surface morphology and microstructure in epitaxial TiN(001) grown by ultra-high-vacuum reactive magnetron sputtering. Surface and Coatings Technology, 1997, 94-95, 403-408.	2.2	31

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145	Optimization of in situ substrate surface treatment in a cathodic arc plasma: A study by TEM and plasma diagnostics. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2001, 19, 1415-1420.	0.9	31
146	Growth and physical properties of epitaxial CeN layers on MgO(001). <i>Journal of Applied Physics</i> , 2003, 94, 921-927.	1.1	31
147	Electron/phonon coupling in group-IV transition-metal and rare-earth nitrides. <i>Journal of Applied Physics</i> , 2013, 114, .	1.1	31
148	Effects of incident N atom kinetic energy on TiN/TiN(001) film growth dynamics: A molecular dynamics investigation. <i>Journal of Applied Physics</i> , 2017, 121, .	1.1	31
149	Time evolution of ion fluxes incident at the substrate plane during reactive high-power impulse magnetron sputtering of groups IVb and VIb transition metals in Ar/N <sub>2</sub> . <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2018, 36, .	0.9	31
150	Large-scale molecular dynamics simulations of TiN/TiN(001) epitaxial film growth. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2016, 34, .	0.9	30
151	Growth, nanostructure, and optical properties of epitaxial VN <sub>x</sub> /MgO(001) (0.80 ≤ x ≤ 1.00) layers deposited by reactive magnetron sputtering. <i>Journal of Materials Chemistry C</i> , 2016, 4, 7924-7938.	2.7	30
152	Reactive sputtering in the ABSTM system. <i>Surface and Coatings Technology</i> , 1993, 56, 179-182.	2.2	29
153	Epitaxial TiN(001) Grown and Analyzed In situ by XPS and UPS. I. Analysis of As-deposited Layers. <i>Surface Science Spectra</i> , 2000, 7, 193-203.	0.3	29
154	In-situ nanoindentation of epitaxial TiN/MgO (001) in a transmission electron microscope. <i>Journal of Electronic Materials</i> , 2003, 32, 1023-1027.	1.0	29
155	Ti and N adatom descent pathways to the terrace from atop two-dimensional TiN/TiN(001) islands. <i>Thin Solid Films</i> , 2014, 558, 37-46.	0.8	29
156	Combined steered arc-unbalanced magnetron grown niobium coatings for decorative and corrosion resistance applications. <i>Surface and Coatings Technology</i> , 1996, 82, 57-64.	2.2	28
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