Ivan G Petrov

List of Publications by Citations

320 papers	16,618 citations	64 h-index	119 g-index
346 ext. papers	17,819 ext. citations	3.8 avg, IF	6.25 L-index

#	Paper	IF	Citations
320	Microstructural evolution during film growth. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2003**, 21, S117-S128	2.9	1301
319	Stretchable batteries with self-similar serpentine interconnects and integrated wireless recharging systems. *Nature Communications*, **2013**, 4, 1543	17.4	978
318	A novel pulsed magnetron sputter technique utilizing very high target power densities. *Surface and Coatings Technology*, **1999**, 122, 290-293	4.4	795
317	Development of preferred orientation in polycrystalline TiN layers grown by ultrahigh vacuum reactive magnetron sputtering. *Applied Physics Letters*, **1995**, 67, 2928-2930	3.4	328
316	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	2.5	292
315	Growth of semiconducting graphene on palladium. *Nano Letters*, **2009**, 9, 3985-90	11.5	283
314	Microstructure modification of TiN by ion bombardment during reactive sputter deposition. *Thin Solid Films*, **1989**, 169, 299-314	2.2	281
313	Surface changes on LiNi0.8Co0.2O2 particles during testing of high-power lithium-ion cells. *Electrochemistry Communications*, **2002**, 4, 620-625	5.1	271
312	Detection of single atoms and buried defects in three dimensions by aberration-corrected electron microscope with 0.5-A information limit. *Microscopy and Microanalysis*, **2008**, 14, 469-77	0.5	241
311	High power pulsed magnetron sputtered CrNx films. *Surface and Coatings Technology*, **2003**, 163-164, 267-272	4.4	228
310	Interface microstructure engineering by high power impulse magnetron sputtering for the enhancement of adhesion. *Journal of Applied Physics*, **2007**, 101, 054301	2.5	227
309	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	2.9	212
308	High-flux low-energy (?20 eV) N+2 ion irradiation during TiN deposition by reactive magnetron sputtering: Effects on microstructure and preferred orientation. *Journal of Applied Physics*, **1995**, 78, 5395-5403	2.5	209
307	Microscopy and Spectroscopy of Lithium Nickel Oxide-Based Particles Used in High Power Lithium-Ion Cells. *Journal of the Electrochemical Society*, **2003**, 150, A1450	3.9	199
306	Growth of poly- and single-crystal ScN on MgO(001): Role of low-energy N2+ irradiation in determining texture, microstructure evolution, and mechanical properties. *Journal of Applied Physics*, **1998**, 84, 6034-6041	2.5	195
305	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	2.9	187
304	Average energy deposited per atom: A universal parameter for describing ion-assisted film growth?. *Applied Physics Letters*, **1993**, 63, 36-38	3.4	181

303	Microstructure and oxidation-resistance of Ti1 □x □y □AlxCryYzN layers grown by combined steered-arc/unbalanced-magnetron-sputter deposition. *Surface and Coatings Technology*, **1997**, 94-95, 226-231	4.4	177
302	Synthesis of metastable epitaxial zinc-blende-structure AlN by solid-state reaction. *Applied Physics Letters*, **1992**, 60, 2491-2493	3.4	175
301	Crystal growth and microstructure of polycrystalline Ti1□AlxN alloy films deposited by ultra-high-vacuum dual-target magnetron sputtering. *Thin Solid Films*, **1993**, 235, 62-70	2.2	175
300	Highly Sensitive, Mechanically Stable Nanopore Sensors for DNA Analysis. *Advanced Materials*, **2009**, 21, 2771	24	169
299	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	2.9	168
298	Mass and energy resolved detection of ions and neutral sputtered species incident at the substrate during reactive magnetron sputtering of Ti in mixed Ar+N2 mixtures. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **1994**, 12, 2846-2854	2.9	161
297	Long-Range and Local Structure in the Layered Oxide Li1.2Co0.4Mn0.4O2. *Chemistry of Materials*, **2011**, 23, 2039-2050	9.6	152
296	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	2.9	152
295	Self-organized nanocolumnar structure in superhard TiB2 thin films. *Applied Physics Letters*, **2005**, 86, 131909	3.4	148
294	Effects of high-flux low-energy (20□100 eV) ion irradiation during deposition on the microstructure and preferred orientation of Ti0.5Al0.5N alloys grown by ultra-high-vacuum reactive magnetron sputtering. *Journal of Applied Physics*, **1993**, 73, 8580-8589	2.5	145
293	Defect structure and phase transitions in epitaxial metastable cubic Ti0.5Al0.5N alloys grown on MgO(001) by ultra-high-vacuum magnetron sputter deposition. *Journal of Applied Physics*, **1991**, 69, 6437-6450	2.5	133
292	Vacancy hardening in single-crystal TiNx(001) layers. *Journal of Applied Physics*, **2003**, 93, 6025-6028	2.5	131
291	Improving high-capacity Li1.2Ni0.15Mn0.55Co0.1O2-based lithium-ion cells by modifiying the positive electrode with alumina. *Journal of Power Sources*, **2013**, 233, 346-357	8.9	127
290	Interface structure in superhard TiN-SiN nanolaminates and nanocomposites: Film growth experiments and ab initio calculations. *Physical Review B*, **2007**, 75,	3.3	125
289	Structure determination of individual single-wall carbon nanotubes by nanoarea electron diffraction. *Applied Physics Letters*, **2003**, 82, 2703-2705	3.4	125
288	Electronic structure of ScN determined using optical spectroscopy, photoemission, and ab initio calculations. *Physical Review B*, **2001**, 63,	3.3	123
287	Local structure and composition studies of Li1.2Ni0.2Mn0.6O2 by analytical electron microscopy. *Journal of Power Sources*, **2008**, 178, 422-433	8.9	122
286	Dense fully 111-textured TiN diffusion barriers: Enhanced lifetime through microstructure control during layer growth. *Journal of Applied Physics*, **1999**, 86, 3633-3641	2.5	117

285	Growth, surface morphology, and electrical resistivity of fully strained substoichiometric epitaxial TiNx (0.67?x. *Journal of Applied Physics*, **2004**, 95, 356-362	2.5	112
284	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	2.5	111
283	Ion-assisted growth of Ti1□AlxN/Ti1□NbyN multilayers by combined cathodic-arc/magnetron-sputter deposition. *Thin Solid Films*, **1997**, 302, 179-192	2.2	109
282	Band gap in epitaxial NaCl-structure CrN(001) layers. *Journal of Applied Physics*, **2002**, 91, 5882-5886	2.5	109
281	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	2.9	104
280	Physico-chemical characterization of NF/RO membrane active layers by Rutherford backscattering spectrometry?. *Journal of Membrane Science*, **2006**, 282, 71-81	9.6	102
279	Phase composition and microstructure of polycrystalline and epitaxial TaNx layers grown on oxidized Si(001) and MgO(001) by reactive magnetron sputter deposition. *Thin Solid Films*, **2002**, 402, 172-182	2.2	99
278	Role of Tin+ and Aln+ ion irradiation (n=1, 2) during Ti1-xAlxN alloy film growth in a hybrid HIPIMS/magnetron mode. *Surface and Coatings Technology*, **2012**, 206, 4202-4211	4.4	98
277	Diagnosis of power fade mechanisms in high-power lithium-ion cells. *Journal of Power Sources*, **2003**, 119-121, 511-516	8.9	98
276	Interpretation of X-ray photoelectron spectra of carbon-nitride thin films: New insights from in situ XPS. *Carbon*, **2016**, 108, 242-252	10.4	94
275	Electrochemically tunable thermal conductivity of lithium cobalt oxide. *Nature Communications*, **2014**, 5, 4035	17.4	92
274	Toughness enhancement in hard ceramic thin films by alloy design. *APL Materials*, **2013**, 1, 042104	5.7	87
273	Epitaxial and polycrystalline HfNx (0.8?x?1.5) layers on MgO(001): Film growth and physical properties. *Journal of Applied Physics*, **2005**, 97, 083521	2.5	86
272	Epitaxial NaCl structure □TaNx(001): Electronic transport properties, elastic modulus, and hardness versus N/Ta ratio. *Journal of Applied Physics*, **2001**, 90, 2879-2885	2.5	80
271	Metal versus rare-gas ion irradiation during Ti1□AlxN 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, 061504	2.9	79
270	Nanomachining carbon nanotubes with ion beams. *Applied Physics Letters*, **2004**, 84, 4484-4486	3.4	79
269	Epitaxial Sc1□TixN(001): Optical and electronic transport properties. *Journal of Applied Physics*, **2001**, 89, 401-409	2.5	78
268	Development of preferred orientation in polycrystalline NaCl-structure □TaN layers grown by reactive magnetron sputtering: Role of low-energy ion surface interactions. *Journal of Applied Physics*, **2002**, 92, 5084-5093	2.5	75

267	Coherent nano-area electron diffraction. *Microscopy Research and Technique*, **2004**, 64, 347-55	2.8	74
266	Morphology of epitaxial TiN(001) grown by magnetron sputtering. *Applied Physics Letters*, **1997**, 70, 1703-1705	3.4	73
265	Elastic constants of single-crystal TiNx(001)(0.67?x?1.0) determined as a function of x by picosecond ultrasonic measurements. *Physical Review B*, **2005**, 71,	3.3	73
264	Growth and physical properties of epitaxial HfN layers on MgO(001). *Journal of Applied Physics*, **2004**, 96, 878-884	2.5	72
263	Moir superstructures of graphene on faceted nickel islands. *ACS Nano*, **2010**, 4, 6509-14	16.7	70
262	Hydrogen uptake in alumina thin films synthesized from an aluminum plasma stream in an oxygen ambient. *Applied Physics Letters*, **1999**, 74, 200-202	3.4	70
261	Transmission electron microscopy studies of microstructural evolution, defect structure, and phase transitions in polycrystalline and epitaxial Ti1AlxN and TiN films grown by reactive magnetron sputter deposition. *Thin Solid Films*, **1991**, 205, 153-164	2.2	70
260	Multiscale Modeling of Thin-Film Deposition: Applications to Si Device Processing. *MRS Bulletin*, **2001**, 26, 182-189	3.2	69
259	Transfer of graphene layers grown on SiC wafers to other substrates and their integration into field effect transistors. *Applied Physics Letters*, **2009**, 95, 202101	3.4	64
258	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	4.4	64
257	Probing interfacial electronic structures in atomic layer LaMnO(3) and SrTiO(3) superlattices. *Advanced Materials*, **2010**, 22, 1156-60	24	63
256	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	2.5	63
255	Influence of the bias voltage on the structure and the tribological performance of nanoscale multilayer C/Cr PVD coatings. *Thin Solid Films*, **2005**, 475, 219-226	2.2	62
254	Analytical electron microscopy of Li1.2Co0.4Mn0.4O2 for lithium-ion batteries. *Solid State Ionics*, **2011**, 182, 98-107	3.3	61
253	Layer-by-layer transfer of multiple, large area sheets of graphene grown in multilayer stacks on a single SiC wafer. *ACS Nano*, **2010**, 4, 5591-8	16.7	60
252	Structural study of Li2MnO3 by electron microscopy. *Journal of Materials Science*, **2009**, 44, 5579-5587	4.3	59
251	Strain-free, single-phase metastable Ti0.38Al0.62N 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	2.2	58
250	Vacancy-induced toughening in hard single-crystal V 0.5 Mo 0.5 N x /MgO(0 0 1) thin films. *Acta Materialia*, **2014**, 77, 394-400	8.4	58

249	Growth and physical properties of epitaxial metastable cubic TaN(001). *Applied Physics Letters*, **1999**, 75, 3808-3810	3.4	58
248	Selection of metal ion irradiation for controlling Ti1−xAlxN alloy growth via hybrid HIPIMS/magnetron co-sputtering. *Vacuum*, **2012**, 86, 1036-1040	3.7	57
247	Dynamic and structural stability of cubic vanadium nitride. *Physical Review B*, **2015**, 91,	3.3	57
246	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, 060801	2.9	55
245	Electrostatic Probe Measurements in the Glow Discharge Plasma of a D. C. Magnetron Sputtering System. *Contributions To Plasma Physics*, **1988**, 28, 157-167	1.4	54
244	Highly oriented ZnO films obtained by d.c. reactive sputtering of a zinc target. *Thin Solid Films*, **1984** , 120, 55-67	2.2	54
243	Influence of an external axial magnetic field on the plasma characteristics and deposition conditions during direct current planar magnetron sputtering. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **1994**, 12, 314-320	2.9	52
242	Epitaxial Ti1-xWxN alloys grown on MgO(001) by ultrahigh vacuum reactive magnetron sputtering: Electronic properties and long-range cation ordering. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2003**, 21, 140-146	2.9	51
241	Synthesis of linked carbon monolayers: films, balloons, tubes, and pleated sheets. *Proceedings of the National Academy of Sciences of the United States of America*, **2008**, 105, 7353-8	11.5	50
240	Improved Ti1−xAlxN PVD Coatings for Dry High Speed Cutting Operations. *Surface Engineering*, **1998**, 14, 37-42	2.6	48
239	Comparison of magnetron sputter deposition conditions in neon, argon, krypton, and xenon discharges. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **1993**, 11, 2733-2741	2.9	48
238	Effects of phase stability, lattice ordering, and electron density on plastic deformation in cubic TiWN pseudobinary transition-metal nitride alloys. *Acta Materialia*, **2016**, 103, 823-835	8.4	47
237	Determining absolute orientation-dependent step energies: a general theory for the Wulff-construction and for anisotropic two-dimensional island shape fluctuations. *Surface Science*, **2003**, 522, 75-83	1.8	47
236	Interfacial reactions in single-crystal-TiN (100)/Al/polycrystalline-TiN multilayer thin films. *Thin Solid Films*, **1992**, 215, 152-161	2.2	47
235	Epitaxial Ti2AlN(0001) thin film deposition by dual-target reactive magnetron sputtering. *Acta Materialia*, **2007**, 55, 4401-4407	8.4	46
234	In situ transmission electron microscopy studies enabled by microelectromechanical system technology. *Journal of Materials Research*, **2005**, 20, 1802-1807	2.5	46
233	TiN(001) and TiN(111) island coarsening kinetics: in-situ scanning tunneling microscopy studies. *Thin Solid Films*, **2001**, 392, 164-168	2.2	46
232	Thermal stability of carbon nitride thin films. *Journal of Materials Research*, **2001**, 16, 3188-3201	2.5	46

231	Dependence of the electromechanical coupling on the degree of orientation of c-textured thin AlN films. *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, **2004**, 51, 1347-1353	3.2	45
230	Ab initio and classical molecular dynamics simulations of N2 desorption from TiN(001) surfaces. *Surface Science*, **2014**, 624, 25-31	1.8	44
229	Thermally induced self-hardening of nanocrystalline TiBN thin films. *Journal of Applied Physics*, **2006**, 100, 044301	2.5	44
228	Control of Ti1−SixN nanostructure via tunable metal-ion momentum transfer during HIPIMS/DCMS co-deposition. *Surface and Coatings Technology*, **2015**, 280, 174-184	4.4	43
227	Elastic constants, Poisson ratios, and the elastic anisotropy of VN(001), (011), and (111) epitaxial layers grown by reactive magnetron sputter deposition. *Journal of Applied Physics*, **2014**, 115, 214908	2.5	43
226	Nucleation kinetics during homoepitaxial growth of TiN(001) by reactive magnetron sputtering. *Physical Review B*, **2004**, 70,	3.3	43
225	Effects of an unbalanced magnetron in a unique dual-cathode, high rate reactive sputtering system. *Thin Solid Films*, **1990**, 193-194, 117-126	2.2	43
224	Dynamics of Ti, N, and TiNx (x=1) admolecule transport on TiN(001) surfaces. *Physical Review B*, **2012**, 86,	3.3	41
223	Absolute orientation-dependent TiN() step energies from two-dimensional equilibrium island shape and coarsening measurements on epitaxial TiN() layers. *Surface Science*, **2002**, 513, 468-474	1.8	41
222	Effect of WN content on toughness enhancement in V1−WxN/MgO(001) thin films. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2014**, 32, 030603	2.9	40
221	Two-dimensional island dynamics: Role of step energy anisotropy. *Surface Science Reports*, **2006**, 60, 55-77	12.9	40
220	Enhanced adhesion through local epitaxy of transition-metal nitride coatings on ferritic steel promoted by metal ion etching in a combined cathodic arc/unbalanced magnetron deposition system. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2000**, 18, 1718-1723	2.9	40
219	Physical properties of epitaxial ZrN/MgO(001) layers grown by reactive magnetron sputtering. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2013**, 31, 061516	2.9	39
218	Phase separation and formation of the self-organised layered nanostructure in C/Cr coatings in conditions of high ion irradiation. *Surface and Coatings Technology*, **2005**, 200, 1572-1579	4.4	39
217	Effects of high-flux low-energy ion bombardment on the low-temperature growth morphology of TiN(001) epitaxial layers. *Physical Review B*, **2000**, 61, 16137-16143	3.3	38
216	Ti adatom diffusion on TiN(001): Ab initio and classical molecular dynamics simulations. *Surface Science*, **2014**, 627, 34-41	1.8	37
215	Electronic structure of the SiNx/TiN interface: A model system for superhard nanocomposites. *Physical Review B*, **2011**, 83,	3.3	37
214	Raman scattering from TiNx (0.67 x 1.00) single crystals grown on MgO(001). *Journal of Applied Physics*, **2011**, 110, 083503	2.5	36

213	In situ high-temperature scanning tunneling microscopy studies of two-dimensional TiN island coarsening kinetics on TiN. *Surface Science*, **2003**, 526, 85-96	1.8	36
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211	Novel strategy for low-temperature, high-rate growth of dense, hard, and stress-free refractory ceramic thin films. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2014**, 32, 041515	2.9	35
210	Synergistic Compositions of Colloidal Nanodiamond as Lubricant-additive. *Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics*, **2010**, 28, 869-877	1.3	35
209	Nucleation kinetics versus nitrogen partial pressure during homoepitaxial growth of stoichiometric TiN(001): A scanning tunneling microscopy study. *Surface Science*, **2005**, 581, L122-127	1.8	35
208	Dislocation-driven surface dynamics on solids. *Nature*, **2004**, 429, 49-52	50.4	34
207	Design and characterization of a compact two-target ultrahigh vacuum magnetron sputter deposition system: Application to the growth of epitaxial Ti1−xAlxN alloys and TiN/Ti1−xAlxN superlattices. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **1993**, 11, 136-142	2.9	34
206	Improving the high-temperature oxidation resistance of TiB2 thin films by alloying with Al. *Acta Materialia*, **2020**, 196, 677-689	8.4	34
205	Measurement and estimation of temperature rise in TEM sample during ion milling. *Ultramicroscopy* , **2007**, 107, 663-8	3.1	33
204	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	2.2	33
203	Absolute orientation-dependent anisotropic TiN(111) island step energies and stiffnesses from shape fluctuation analyses. *Physical Review B*, **2003**, 67,	3.3	33
202	Absolute TiN(111) step energies from analysis of anisotropic island shape fluctuations. *Physical Review Letters*, **2002**, 88, 146101	7.4	33
201	Epitaxial growth of metastable δ-TaN layers on MgO(001) using low-energy, high-flux ion irradiation during ultrahigh vacuum reactive magnetron sputtering. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2002**, 20, 2007	2.9	33
200	Origin of compositional variations in sputter-deposited TixW1−x diffusion barrier layers. *Applied Physics Letters*, **1995**, 67, 3102-3104	3.4	32
199	A review of the intrinsic ductility and toughness of hard transition-metal nitride alloy thin films. *Thin Solid Films*, **2019**, 688, 137479	2.2	31
198	Controlling the B/Ti ratio of TiBx thin films grown by high-power impulse magnetron sputtering. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2018**, 36, 030604	2.9	30
197	Ab Initio Molecular Dynamics Simulations of Nitrogen/VN(001) Surface Reactions: Vacancy-Catalyzed N2 Dissociative Chemisorption, N Adatom Migration, and N2 Desorption. *Journal of Physical Chemistry C*, **2016**, 120, 12503-12516	3.8	30
196	Electron/phonon coupling in group-IV transition-metal and rare-earth nitrides. *Journal of Applied Physics*, **2013**, 114, 193708	2.5	30

195	Configurational disorder effects on adatom mobilities on Ti1−xAlxN(001) surfaces from first principles. *Physical Review B*, **2012**, 85,	3.3	30
194	Controlling the boron-to-titanium ratio in magnetron-sputter-deposited TiBx thin films. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2017**, 35, 050601	2.9	29
193	Strategy for tuning the average charge state of metal ions incident at the growing film during HIPIMS deposition. *Vacuum*, **2015**, 116, 36-41	3.7	29
192	Optimization of in situ substrate surface treatment in a cathodic arc plasma: A study by TEM and plasma diagnostics. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2001**, 19, 1415-1420	2.9	29
191	Nitrogen-doped bcc-Cr films: Combining ceramic hardness with metallic toughness and conductivity. *Scripta Materialia*, **2016**, 122, 40-44	5.6	29
190	Elastic properties and plastic deformation of TiC- and VC-based pseudobinary alloys. *Acta Materialia*, **2018**, 144, 376-385	8.4	28
189	Ti and N adatom descent pathways to the terrace from atop two-dimensional TiN/TiN(001) islands. *Thin Solid Films*, **2014**, 558, 37-46	2.2	28
188	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, 183-93	0.5	28
187	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	4.4	28
186	Low-energy electron microscopy studies of interlayer mass transport kinetics on TiN(111). *Surface Science*, **2004**, 560, 53-62	1.8	28
185	Growth and physical properties of epitaxial CeN layers on MgO(001). *Journal of Applied Physics*, **2003**, 94, 921-927	2.5	28
184	Phonon and electron contributions to the thermal conductivity of VNx epitaxial layers. *Physical Review Materials*, **2017**, 1,	3.2	28
183	N and Ti adatom dynamics on stoichiometric polar TiN(111) surfaces. *Surface Science*, **2016**, 649, 72-79	1.8	27
182	Nanolabyrinthine ZrAlN thin films by self-organization of interwoven single-crystal cubic and hexagonal phases. *APL Materials*, **2013**, 1, 022105	5.7	27
181	In-situ nanoindentation of epitaxial TiN/MgO (001) in a transmission electron microscope. *Journal of Electronic Materials*, **2003**, 32, 1023-1027	1.9	27
180	Strategy for simultaneously increasing both hardness and toughness in ZrB2-rich Zr1−xTaxBy thin films. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2019**, 37, 031506	2.9	26
179	Reactive sputtering in the ABSTM system. *Surface and Coatings Technology*, **1993**, 56, 179-182	4.4	26
178	Effects of incident N atom kinetic energy on TiN/TiN(001) film growth dynamics: A molecular dynamics investigation. *Journal of Applied Physics*, **2017**, 121, 025302	2.5	25

177	Raman scattering from epitaxial TaNx(0.94≤1.37) layers grown on MgO(001). *Journal of Applied Physics*, **2007**, 101, 123509	2.5	25
176	Size-dependent detachment-limited decay kinetics of two-dimensional TiN islands on TiN(111). *Physical Review Letters*, **2002**, 89, 176102	7.4	25
175	Epitaxial TiN(001) Grown and Analyzed In situ by XPS and UPS. I. Analysis of As-deposited Layers. *Surface Science Spectra*, **2000**, 7, 193-203	1.2	25
174	Combined steered arc-unbalanced magnetron grown niobium coatings for decorative and corrosion resistance applications. *Surface and Coatings Technology*, **1996**, 82, 57-64	4.4	25
173	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, 05E101	2.9	24
172	Development of 111 texture in Al films grown on SiO2/Si(001) by ultrahigh-vacuum primary-ion deposition. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **1996**, 14, 346-351	2.9	24
171	Morphology and microstructure of epitaxial Cu(001) films grown by primary ion deposition on Si and Ge substrates. *Journal of Applied Physics*, **1996**, 80, 6699-6705	2.5	24
170	Single-phase polycrystalline Ti1−WxN alloys (0?x?0.7) grown by UHV reactive magnetron sputtering: microstructure and physical properties. *Thin Solid Films*, **1994**, 253, 445-450	2.2	24
169	Growth, nanostructure, and optical properties of epitaxial VNx/MgO(001) (0.80 ≤ x ≤ 1.00) layers deposited by reactive magnetron sputtering. *Journal of Materials Chemistry C*, **2016**, 4, 7924-7938	7.1	24
168	Self-organized anisotropic (Zr1−Si)N nanocomposites grown by reactive sputter deposition. *Acta Materialia*, **2015**, 82, 179-189	8.4	23
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