Matthias Batzill

List of Publications by Citations

131 papers	11,030 citations	43 h-index	104 g-index
139 ext. papers	12,218 ext. citations	6.2 avg, IF	6.85 L-index

#	Paper	IF	Citations
131	The surface and materials science of tin oxide. *Progress in Surface Science*, **2005**, 79, 47-154	6.6	1903
130	An extended defect in graphene as a metallic wire. *Nature Nanotechnology*, **2010**, 5, 326-9	28.7	816
129	Strong room-temperature ferromagnetism in VSe monolayers on van der Waals substrates. *Nature Nanotechnology*, **2018**, 13, 289-293	28.7	795
128	Why is anatase a better photocatalyst than rutile?--Model studies on epitaxial TiO2 films. *Scientific Reports*, **2014**, 4, 4043	4.9	776
127	The surface science of graphene: Metal interfaces, CVD synthesis, nanoribbons, chemical modifications, and defects. *Surface Science Reports*, **2012**, 67, 83-115	12.9	660
126	Influence of nitrogen doping on the defect formation and surface properties of TiO2 rutile and anatase. *Physical Review Letters*, **2006**, 96, 026103	7.4	561
125	Steps on anatase TiO2(101). *Nature Materials*, **2006**, 5, 665-70	27	357
124	A two-dimensional phase of TiO□with a reduced bandgap. *Nature Chemistry*, **2011**, 3, 296-300	17.6	339
123	Graphene-nickel interfaces: a review. *Nanoscale*, **2014**, 6, 2548-62	7.7	297
122	Fundamental aspects of surface engineering of transition metal oxide photocatalysts. *Energy and Environmental Science*, **2011**, 4, 3275	35.4	209
121	Photocatalytic degradation of methyl orange over single crystalline ZnO: orientation dependence of photoactivity and photostability of ZnO. *Langmuir*, **2009**, 25, 3310-5	4	196
120	Gas-phase-dependent properties of SnO2 (110), (100), and (101) single-crystal surfaces: Structure, composition, and electronic properties. *Physical Review B*, **2005**, 72,	3.3	185
119	Graphene growth on Ni(111) by transformation of a surface carbide. *Nano Letters*, **2011**, 11, 518-22	11.5	166
118	Surface Science Studies of Gas Sensing Materials: SnO2. *Sensors*, **2006**, 6, 1345-1366	3.8	161
117	Monolayer graphene growth on Ni(111) by low temperature chemical vapor deposition. *Applied Physics Letters*, **2012**, 100, 021601	3.4	150
116	Direct observation of interlayer hybridization and Dirac relativistic carriers in graphene/MoS□van der Waals heterostructures. *Nano Letters*, **2015**, 15, 1135-40	11.5	142
115	Surface studies of gas sensing metal oxides. *Physical Chemistry Chemical Physics*, **2007**, 9, 2307-18	3.6	131

114	Adsorption of water on reconstructed rutile TiO2(011)-(2 x 1): Ti=O double bonds and surface reactivity. *Journal of the American Chemical Society*, **2005**, 127, 9895-903	16.4	104
113	Graphene growth and stability at nickel surfaces. *New Journal of Physics*, **2011**, 13, 025001	2.9	96
112	Surface studies of nitrogen implanted TiO2. *Chemical Physics*, **2007**, 339, 36-43	2.3	92
111	Surface structure of TiO2(011)-(2x1). *Physical Review Letters*, **2004**, 93, 036104	7.4	87
110	Fusing tetrapyrroles to graphene edges by surface-assisted covalent coupling. *Nature Chemistry*, **2017**, 9, 33-38	17.6	85
109	Interface properties of CVD grown graphene transferred onto MoS2(0001). *Nanoscale*, **2014**, 6, 1071-8	7.7	82
108	Surface Functionalization of ZnO Photocatalysts with Monolayer ZnS. *Journal of Physical Chemistry C*, **2008**, 112, 4304-4307	3.8	82
107	Charge Density Wave State Suppresses Ferromagnetic Ordering in VSe2 Monolayers. *Journal of Physical Chemistry C*, **2019**, 123, 14089-14096	3.8	81
106	Molecular beam epitaxy of the van der Waals heterostructure MoTe 2 on MoS 2 : phase, thermal, and chemical stability. *2D Materials*, **2015**, 2, 044010	5.9	79
105	Growth of a two-dimensional dielectric monolayer on quasi-freestanding graphene. *Nature Nanotechnology*, **2013**, 8, 41-5	28.7	78
104	Pure and cobalt-doped SnO2(101) films grown by molecular beam epitaxy on Al2O3. *Thin Solid Films*, **2005**, 484, 132-139	2.2	76
103	Enhanced tunneling magnetoresistance and high-spin polarization at room temperature in a polystyrene-coated Fe3O4 granular system. *Physical Review B*, **2006**, 73,	3.3	70
102	Variations of the local electronic surface properties of TiO2(110) induced by intrinsic and extrinsic defects. *Physical Review B*, **2002**, 66,	3.3	69
101	Metallic Twin Boundaries Boost the Hydrogen Evolution Reaction on the Basal Plane of Molybdenum Selenotellurides. *Advanced Energy Materials*, **2018**, 8, 1800031	21.8	66
100	Metallic Twin Grain Boundaries Embedded in MoSe Monolayers Grown by Molecular Beam Epitaxy. *ACS Nano*, **2017**, 11, 5130-5139	16.7	62
99	Atomic and electronic structure of simple metal/graphene and complex metal/graphene/metal interfaces. *Physical Review B*, **2012**, 85,	3.3	61
98	Surface morphologies of SnO2(110). *Surface Science*, **2003**, 529, 295-311	1.8	56
97	Growth of Copper on Single Crystalline ZnO: Surface Study of a Model Catalyst. *Topics in Catalysis*, **2005**, 36, 65-76	2.3	56

96	High density of (pseudo) periodic twin-grain boundaries in molecular beam epitaxy-grown van der Waals heterostructure: MoTe2/MoS2. *Applied Physics Letters*, **2016**, 108, 191606	3.4	56
95	Surface oxygen chemistry of a gas-sensing material: SnO 2 (101). *Europhysics Letters*, **2004**, 65, 61-67	1.6	55
94	Fundamental studies of titanium oxide–Pt(1 0 0) interfaces: I. Stable high temperature structures formed by annealing TiOx films on Pt(1 0 0). *Surface Science*, **2004**, 572, 127-145	1.8	53
93	Angle resolved photoemission spectroscopy reveals spin charge separation in metallic MoSe grain boundary. *Nature Communications*, **2017**, 8, 14231	17.4	50
92	Influence of hydroxyls on Pd atom mobility and clustering on rutile TiO(2)(011)-2 □1. *ACS Nano*, **2014**, 8, 6321-33	16.7	46
91	Role of Surface Structure on the Charge Trapping in TiO2 Photocatalysts. *Journal of Physical Chemistry Letters*, **2010**, 1, 3200-3206	6.4	44
90	Adsorption of Acetic Acid on Rutile TiO2(110) vs (011)-2 □1 Surfaces. *Journal of Physical Chemistry C*, **2011**, 115, 3434-3442	3.8	44
89	Tuning the chemical functionality of a gas sensitive material: Water adsorption on SnO2(1 0 1). *Surface Science*, **2006**, 600, 29-32	1.8	43
88	Electronic contrast in scanning tunneling microscopy of Sn–Pt(111) surface alloys. *Surface Science*, **2000**, 466, L821-L826	1.8	42
87	Charge doping of graphene in metal/graphene/dielectric sandwich structures evaluated by C-1s core level photoemission spectroscopy. *APL Materials*, **2013**, 1, 042107	5.7	41
86	Mixed dissociated/molecular monolayer of water on the TiO2(011)-(2□1) surface. *Surface Science*, **2005**, 591, L267-L272	1.8	40
85	Post-Synthesis Modifications of Two-Dimensional MoSe or MoTe by Incorporation of Excess Metal Atoms into the Crystal Structure. *ACS Nano*, **2018**, 12, 3975-3984	16.7	39
84	Diffusion and Reaction of Hydrogen on Rutile TiO2(011)-2□1: The Role of Surface Structure. *Journal of Physical Chemistry C*, **2012**, 116, 20438-20446	3.8	39
83	Room-Temperature Ferromagnetism in MoTe2 by Post-Growth Incorporation of Vanadium Impurities. *Advanced Electronic Materials*, **2019**, 5, 1900044	6.4	38
82	Graphene monolayer rotation on Ni(111) facilitates bilayer graphene growth. *Applied Physics Letters*, **2012**, 100, 241602	3.4	38
81	Which Transition Metal Atoms Can Be Embedded into Two-Dimensional Molybdenum Dichalcogenides and Add Magnetism?. *Nano Letters*, **2019**, 19, 4581-4587	11.5	36
80	Graphene destruction by metal-carbide formation: An approach for patterning of metal-supported graphene. *Applied Physics Letters*, **2010**, 97, 023102	3.4	35
79	Tuning the oxide/organic interface: Benzene on SnO2(101). *Applied Physics Letters*, **2004**, 85, 5766-5768	3.4	35

78	Photocatalytic activity of anatase and rutile TiO2 epitaxial thin film grown by pulsed laser deposition. *Thin Solid Films*, **2014**, 564, 146-155	2.2	33
77	Graphene on ordered Ni-alloy surfaces formed by metal (Sn, Al) intercalation between graphene/Ni(111). *Surface Science*, **2012**, 606, 1108-1112	1.8	33
76	Molecular Beam Epitaxy of Transition Metal (Ti-, V-, and Cr-) Tellurides: From Monolayer Ditellurides to Multilayer Self-Intercalation Compounds. *ACS Nano*, **2020**, 14, 8473-8484	16.7	31
75	Layer- and substrate-dependent charge density wave criticality in 1T□TiSe 2. *2D Materials*, **2018**, 5, 015006	5.9	31
74	Epitaxial growth of tin oxide on Pt(111): Structure and properties of wetting layers and SnO2 crystallites. *Physical Review B*, **2004**, 69,	3.3	31
73	Fundamental studies of titanium oxide-Pt(100) interfaces II. Influence of oxidation and reduction reactions on the surface structure of TiOx films on Pt(100). *Surface Science*, **2004**, 572, 146-161	1.8	30
72	New directions for atomic steps: step alignment by grazing incident ion beams on TiO2(110). *Physical Review Letters*, **2009**, 102, 166103	7.4	29
71	Evidence for slow oxygen exchange between multiple adsorption sites at high oxygen coverages on Pt(111). *Surface Science*, **2002**, 498, L91-L96	1.8	28
70	Soft x-ray photoemission of clean and sulfur-covered polar ZnO surfaces: A view of the stabilization of polar oxide surfaces. *Physical Review B*, **2008**, 78,	3.3	27
69	Structure of monolayer tin oxide films on Pt(111) formed using NO2 as an efficient oxidant. *Physical Review B*, **2001**, 64,	3.3	27
68	Growth from behind: Intercalation-growth of two-dimensional FeO moir□structure underneath of metal-supported graphene. *Scientific Reports*, **2015**, 5, 11378	4.9	25
67	Adsorbate induced restructuring of TiO2(011)-(2□) leads to one-dimensional nanocluster formation. *Physical Review Letters*, **2012**, 108, 106105	7.4	25
66	Tuning surface properties of SnO2(1 0 1) by reduction. *Journal of Physics and Chemistry of Solids*, **2006**, 67, 1923-1929	3.9	25
65	Defects and domain boundaries in self-assembled terephthalic acid (TPA) monolayers on CVD-grown graphene on Pt(111). *Langmuir*, **2013**, 29, 6354-60	4	23
64	A reactive force-field (ReaxFF) Monte Carlo study of surface enrichment and step structure on yttria-stabilized zirconia. *Surface Science*, **2010**, 604, 1438-1444	1.8	23
63	Influence of subsurface, charged impurities on the adsorption of chlorine at TiO2(1 1 0). *Chemical Physics Letters*, **2003**, 367, 319-323	2.5	23
62	Monolayer Modification of VTe and Its Charge Density Wave. *Journal of Physical Chemistry Letters*, **2019**, 10, 4987-4993	6.4	22
61	Preparation by glancing incidence ion irradiation of surfaces with □gstrom-scale RMS roughness. *Nanotechnology*, **1997**, 8, 40-45	3.4	22

60	Oxygen adsorption on Cu2nO(0001)2n. *Physical Review B*, **2008**, 77,	3.3	19
59	Silver on Pt(1 0 0)oom temperature growth and high temperature alloying. *Surface Science*, **2004**, 553, 50-60	1.8	19
58	Tin-oxide overlayer formation by oxidation of Pt3n(111) surface alloys. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2001**, 19, 1953-1958	2.9	19
57	Nanoripple formation on TiO2(110) by low-energy grazing incidence ion sputtering. *Physical Review B*, **2010**, 82,	3.3	18
56	Modification of Active Sites on YSZ(111) by Yttria Segregation. *Journal of Physical Chemistry C*, **2010**, 114, 5990-5996	3.8	18
55	Self-organized molecular-sized, hexagonally ordered SnOx nanodot superlattices on Pt(111). *Applied Physics Letters*, **2001**, 78, 2766-2768	3.4	18
54	Atomic and electronic structure of graphene/Sn-Ni(111) and graphene/Sn-Cu(111) surface alloy interfaces. *Applied Physics Letters*, **2012**, 101, 051602	3.4	17
53	A magnetic sensor using a 2D van der Waals ferromagnetic material. *Scientific Reports*, **2020**, 10, 4789	4.9	16
52	Preparation and characterization of Ni(111)/graphene/Y2O3(111) heterostructures. *Journal of Applied Physics*, **2013**, 113, 194305	2.5	16
51	Mirror twin grain boundaries in molybdenum dichalcogenides. *Journal of Physics Condensed Matter*, **2018**, 30, 493001	1.8	16
50	Substrate dependent electronic structure variations of van der Waals heterostructures of MoSe 2 or MoSe 2(1x) Te 2 x grown by van der Waals epitaxy. *2D Materials*, **2017**, 4, 025094	5.9	15
49	Ultrathin Y2O3(111) films on Pt(111) substrates. *Surface Science*, **2011**, 605, 1826-1833	1.8	15
48	Growth of one-dimensional Pd nanowires on the terraces of a reduced SnO2(101) surface. *Physical Review Letters*, **2007**, 98, 186102	7.4	15
47	Silver on Pt(100): Alloying vs. surface reconstructionwo competing mechanisms to reduce surface stress. *Europhysics Letters*, **2003**, 64, 70-76	1.6	14
46	Interface between Graphene and SrTiO3(001) Investigated by Scanning Tunneling Microscopy and Photoemission. *Journal of Physical Chemistry C*, **2013**, 117, 21006-21013	3.8	13
45	Seeding atomic layer deposition of alumina on graphene with yttria. *ACS Applied Materials & Interfaces*, **2015**, 7, 2082-7	9.5	13
44	Formation and structure of a (19 19)R23.4°-Ge/Pt(111) surface alloy. *Surface Science*, **2009**, 603, 1161-1167	1.8	13
43	Comparative study of ZnO thin film and nanopillar growth on YSZ(111) and sapphire (0001) substrates by pulsed laser deposition. *Journal of Crystal Growth*, **2010**, 312, 2012-2018	1.6	13

42	Ordered Fe(II)Ti(IV)O3 Mixed Monolayer Oxide on Rutile TiO2(011). *ACS Nano*, **2015**, 9, 8627-36	16.7	12
41	Band renormalization and spin polarization of MoS2 in graphene/MoS2 heterostructures. *Physica Status Solidi - Rapid Research Letters*, **2015**, 9, 701-706	2.5	12
40	High temperature scanning tunneling microscopy of purely ion conducting yttria stabilized zirconia (YSZ). *Surface Science*, **2009**, 603, L78-L81	1.8	12
39	Characterizing solid state gas responses using surface charging in photoemission: water adsorption on SnO2(101). *Journal of Physics Condensed Matter*, **2006**, 18, L129-L134	1.8	12
38	Synthesis and characterization of 2D transition metal dichalcogenides: Recent progress from a vacuum surface science perspective. *Surface Science Reports*, **2021**, 76, 100523	12.9	12
37	Metastable surface structures of the bimetallic Sn/Pt(1 0 0) system. *Surface Science*, **2004**, 558, 35-48	1.8	11
36	Ultrahigh vacuum instrument that combines variable-temperature scanning tunneling microscopy with Fourier transform infrared reflection-absorption spectroscopy for studies of chemical reactions at surfaces. *Review of Scientific Instruments*, **2002**, 73, 1267-1272	1.7	11
35	Controlling the Charge Density Wave Transition in Monolayer TiSe2: Substrate and Doping Effects. *Advanced Quantum Technologies*, **2018**, 1, 1800070	4.3	11
34	Monolayer Intermixed Oxide Surfaces: Fe, Ni, Cr, and V Oxides on Rutile TiO2(011). *Journal of Physical Chemistry C*, **2016**, 120, 14782-14794	3.8	10
33	Combined Surface Science and DFT Study of the Adsorption of Dinitrotoluene (2,4-DNT) on Rutile TiO2(110): Molecular Scale Insight into Sensing of Explosives. *Journal of Physical Chemistry C*, **2013**, 117, 16468-16476	3.8	10
32	Structural and chemical properties of a c(2□)□Ti/Pt(100) second-layer alloy: A probe of strong ligand effects on surface Pt atoms. *Physical Review B*, **2003**, 68,	3.3	10
31	Deposition of silver on the Pt(100)-hex surface: kinetic control of alloy formation and composition by surface reconstruction. *Surface Science*, **2002**, 498, L85-L90	1.8	9
30	Self-organization of large-area periodic nanowire arrays by glancing incidence ion bombardment of CaF2(111) surfaces. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2001**, 19, 1829-1834	2.9	9
29	Layer-Dependent Band Gaps of Platinum Dichalcogenides. *ACS Nano*, **2021**, 15, 13249-13259	16.7	9
28	Ion-beam-directed self-organization of conducting nanowire arrays. *Physical Review B*, **2001**, 63,	3.3	8
27	Fabrication of periodic nanoscale Ag-wire arrays on vicinal surfaces. *Nanotechnology*, **1998**, 9, 20-29	3.4	8
26	Preferential sputtering induced stress domains and mesoscopic phase separation on CaF2(111). *Physical Review Letters*, **2000**, 85, 780-3	7.4	7
25	A first-principles study of stability of surface confined mixed metal oxides with corundum structure (FeO, CrO, VO). *Physical Chemistry Chemical Physics*, **2018**, 20, 7073-7081	3.6	6

24	Suppressed surface alloying for a bulk miscible system: Ge on Pt(100). *Physical Review B*, **2004**, 69,	3.3	6
23	Shape transition of calcium islands formed by electron-stimulated desorption of fluorine from a CaF2(111) surface. *Applied Physics Letters*, **2000**, 77, 1955-1957	3.4	6
22	Epitaxial corundum-VTiO3 thin films grown on c-cut sapphire. *Thin Solid Films*, **2017**, 631, 85-92	2.2	5
21	Comparison of surface structures of corundum CrO(0 0 0 1) and VO(0 0 0 1) ultrathin films by x-ray photoelectron diffraction. *Journal of Physics Condensed Matter*, **2018**, 30, 074002	1.8	5
20	Wet-transfer of CVD-grown graphene onto sulfur-protected W(110). *Surface Science*, **2015**, 634, 9-15	1.8	5
19	Mirror twin boundaries in MoSe monolayers as one dimensional nanotemplates for selective water adsorption. *Nanoscale*, **2021**, 13, 1038-1047	7.7	5
18	Compositional Phase Change of Early Transition Metal Diselenide (VSe2 and TiSe2) Ultrathin Films by Postgrowth Annealing. *Advanced Materials Interfaces*, **2020**, 7, 2000497	4.6	4
17	An Ordered Mixed Oxide Monolayer Formed by Iron Segregation on Rutile-TiO2(011): Structural Determination by X-ray Photoelectron Diffraction. *Journal of Physical Chemistry C*, **2016**, 120, 26414-26424	3.8	4
16	Oxidation of palladium on Au(111) and ZnO(0001) supports. *Journal of Chemical Physics*, **2014**, 141, 154702	3.9	4
15	Defects and Pd growth on the reduced SnO2(1 0 0) surface. *Surface Science*, **2008**, 602, 1699-1704	1.8	4
14	Fe(II)Ti(IV)O3 mixed oxide monolayer at rutile TiO2(011): Structures and reactivities. *Surface Science*, **2016**, 653, 34-40	1.8	4
13	Periodic Modulation of Graphene by a 2D-FeO/Ir(111) Moir□Interlayer. *Journal of Physical Chemistry C*, **2017**, 121, 2762-2770	3.8	3
12	Edge and Point-Defect Induced Electronic and Magnetic Properties in Monolayer PtSe 2. *Advanced Functional Materials*,2110428	15.6	3
11	Surface Science Studies of Metal Oxide Gas Sensing Materials **2013**, 35-67		2
10	(Invited) Excellent Wetting Behavior of Yttria on 2D Materials. *ECS Transactions*, **2015**, 69, 325-336	1	2
9	Ge overlayer and surface alloy structures on Pt(100) studied using alkali ion scattering spectroscopy, x-ray photoelectron spectroscopy and x-ray photoelectron diffraction. *Journal of Physics Condensed Matter*, **2014**, 26, 135002	1.8	2
8	Mixed oxides on rutile TiO2(011): Cr2O3 and Cu2O. *Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films*, **2017**, 35, 061406	2.9	1
7	STM and LEED observations of a c(2 □2) Ge overlayer on Pt(1 0 0). *Surface Science*, **2009**, 603, 2255-2262	1.8	1

6	Formation of GePt Layer Compound on Pt(100). *Journal of Physical Chemistry C*, **2009**, 113, 21019-21021	3.8	1
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4	Investigation of the dipole formation and growth behavior at In2O3|TiO2 heterojunctions using photoemission spectroscopy and atomic force microscopy. *Journal of Applied Physics*, **2016**, 119, 065305	2.5	1
3	Thermal Phase Control of Two-Dimensional Pt-Chalcogenide (Se and Te) Ultrathin Epitaxial Films and Nanocrystals. *Chemistry of Materials*, **2021**, 33, 8018-8027	9.6	0
2	Fundamentals of chemical functionalities at oxide interfaces. *Journal of Physics Condensed Matter*, **2018**, 30, 170301	1.8	
1	Search for 2D Ferromagnets: Molecular Beam Epitaxy is a Critical Tool. *Chinese Physics Letters*, **2020** , 37, 080101	1.8	