David J Payne

List of Publications by Year
in descending order

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109 papers	7,130 citations	66343 42 h-index	56724 83 g-index
110 all docs	110 docs citations	110 times ranked	11098 citing authors

#	Article	IF	Citations
1	Stereochemistry of post-transition metal oxides: revision of the classical lone pair model. Chemical Society Reviews, 2011, 40, 4455.	38.1	590
2	Nature of the Band Gap of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>In</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">O</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:math>Revealed by First-Principles Calculations and X-Ray Spectroscopy. Physical Review Letters, 2008, 100, 167402.	7.8	576
3	Theoretical and Experimental Study of the Electronic Structures of MoO₃and MoO₂. Journal of Physical Chemistry C, 2010, 114, 4636-4645.	3.1	533
4	Band gap, electronic structure, and surface electron accumulation of cubic and rhombohedral<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>In</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msub>	3.2	369
	Physical Review B, 2009, 79, .		
5	Surface Electron Accumulation and the Charge Neutrality Level in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>In</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">O</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:math>. Physical Review	7.8	236
	Letters, 2008, 101, 116808.		
6	Copper(I) Thiocyanate (CuSCN) Holeâ€Transport Layers Processed from Aqueous Precursor Solutions and Their Application in Thinâ€Film Transistors and Highly Efficient Organic and Organometal Halide Perovskite Solar Cells. Advanced Functional Materials, 2017, 27, 1701818.	14.9	208
7	Electronic Origins of Structural Distortions in Post-Transition Metal Oxides: Experimental and Theoretical Evidence for a Revision of the Lone Pair Model. Physical Review Letters, 2006, 96, 157403.	7.8	202
8	Electronic structure of theÎ±andÎ´phases ofBi2O3: A combinedab initioand x-ray spectroscopy study. Physical Review B, 2006, 73, .	3.2	187
9	A conducting polymer with enhanced electronic stability applied in cardiac models. Science Advances, 2016, 2, e1601007.	10.3	173
10	Tailoring SOFC Electrode Microstructures for Improved Performance. Advanced Energy Materials, 2018, 8, 1800120.	19.5	159
11	PdIn intermetallic nanoparticles for the Hydrogenation of CO2 to Methanol. Applied Catalysis B: Environmental, 2018, 220, 9-18.	20.2	153
12	Shallow donor state of hydrogen in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>In</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msub>	3.2	135
	xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>SnO</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:ms		
	Implications for conductivi. Physical Review B, 2009, 80, .		
13	Effect of Cr substitution on the electronic structure of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>CuAl</mml:mtext></mml:mrow><mml:mrow><mml:mn>1</mml:mn>	3.2	116
	Physical Review B, 2009, 79, .		
14	Electronic structure of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>In</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msub>	3.2	114
	Sn-doped<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>In</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msub>		
	Understanding the Electronic Structure of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>IrO</mml:mi></mml:mrow><mml:mn>2</mml:mn>	7.8	107
15	Hard-X-ray Photoelectron Spectroscopy and Density-Functional Theory. Physical Review Letters, 2014, 112, 117601.		
16	Experimental and theoretical study of the electronic structures of Î±-PbO and Î²-PbO2. Journal of Materials Chemistry, 2007, 17, 267-277.	6.7	104
17	Growth of In2O3(100) on Y-stabilized ZrO2(100) by O-plasma assisted molecular beam epitaxy. Applied Physics Letters, 2008, 92, .	3.3	102
18	Elucidating the deprotonation of polyaniline films by X-ray photoelectron spectroscopy. Journal of Materials Chemistry C, 2015, 3, 7180-7186.	5.5	95

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19	Nature of the Band Gap and Origin of the Conductivity of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mi>PbO</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:math>Revealed by Theory and Experiment. Physical Review Letters, 2011, 107, 246402.	7.8	93
20	Surface enhanced Raman scattering artificial nose for high dimensionality fingerprinting. Nature Communications, 2020, 11, 207.	12.8	93
21	The nature of electron lone pairs in BiVO4. Applied Physics Letters, 2011, 98, .	3.3	90
22	Atomic and electronic surface structures of dopants in oxides: STM and XPS of Nb- and La-doped SrTiO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mi /><mml:mrow><mml:mn>3</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math>(001). Physical Review B, 2011, 83, .	3.2	89
23	X-ray spectroscopic study of the electronic structure of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>CuCrO</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review B, 2009, 79, .	3.2	88
24	Linking in situ charge accumulation to electronic structure in doped SrTiO3 reveals design principles for hydrogen-evolving photocatalysts. Nature Materials, 2021, 20, 511-517.	27.5	82
25	Why is lead dioxide metallic?. Chemical Physics Letters, 2005, 411, 181-185.	2.6	78
26	Pd₂Ga-Based Colloids as Highly Active Catalysts for the Hydrogenation of CO₂ to Methanol. ACS Catalysis, 2017, 7, 1186-1196.	11.2	78
27	Multibranched Gold Nanoparticles with Intrinsic LAT-1 Targeting Capabilities for Selective Photothermal Therapy of Breast Cancer. ACS Applied Materials & Interfaces, 2017, 9, 39259-39270.	8.0	74
28	On-site interband excitations in resonant inelastic x-ray scattering from<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mi mathvariant="normal">Cu</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:mi mathvariant="normal">O</mml:mi></mml:mrow></mml:math>. Physical Review B, 2008, 77, .	3.2	70
29	High-resolution x-ray spectroscopic study of the electronic structure of the prototypicalp-type transparent conducting oxideCuAlO2. Physical Review B, 2005, 72, .	3.2	65
30	Electronic Structure and Band Alignment at the NiO and SrTiO₃ pâ€“n Heterojunctions. ACS Applied Materials & Interfaces, 2017, 9, 26549-26555.	8.0	65
31	Lead acid battery recycling for the twenty-first century. Royal Society Open Science, 2018, 5, 171368.	2.4	65
32	Developments in electrochemical processes for recycling leadâ€“acid batteries. Current Opinion in Electrochemistry, 2019, 16, 83-89.	4.8	65
33	Nitrogen diffusion in doped TiO2 (110) single crystals: a combined XPS and SIMS study. Journal of Materials Chemistry, 2009, 19, 8418.	6.7	64
34	Electrochemical recycling of lead from hybrid organicâ€“inorganic perovskites using deep eutectic solvents. Green Chemistry, 2016, 18, 2946-2955.	9.0	62
35	NASICON LiM₂(PO₄)₃ electrolyte (M = Zr) and electrode (M = Ti) materials for all solid-state Li-ion batteries with high total conductivity and low interfacial resistance. Journal of Materials Chemistry A, 2018, 6, 5296-5303.	10.3	62
36	Surface Structure and Electronic Properties of In₂O₃(111) Single-Crystal Thin Films Grown on Y-Stabilized ZrO₂(111). Chemistry of Materials, 2009, 21, 4353-4355.	6.7	54

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37	Domain Matching Epitaxial Growth of In₂O₃ Thin Films on Î±-Al₂O₃(0001). Crystal Growth and Design, 2012, 12, 1000-1007.	3.0	52
38	Tunable porous boron nitride: Investigating its formation and its application for gas adsorption. Microporous and Mesoporous Materials, 2017, 243, 154-163.	4.4	51
39	High resolution X-ray photoemission study of nitrogen doped TiO2 rutile single crystals. Chemical Physics Letters, 2008, 454, 314-317.	2.6	48
40	Origin of Openâ€Circuit Voltage Enhancements in Planar Perovskite Solar Cells Induced by Addition of Bulky Organic Cations. Advanced Functional Materials, 2020, 30, 1906763.	14.9	47
41	Investigation of the growth of In2O3 on Y-stabilized ZrO2(100) by oxygen plasma assisted molecular beam epitaxy. Thin Solid Films, 2009, 517, 4286-4294.	1.8	45
42	Electronic structure of In2O3 from resonant x-ray emission spectroscopy. Applied Physics Letters, 2009, 94, .	3.3	42
43	Crystal structure and surface characteristics of Sr-doped GdBaCo₂O_{6â^Î´} double perovskites: oxygen evolution reaction and conductivity. Journal of Materials Chemistry A, 2018, 6, 5335-5345.	10.3	42
44	The influence of Sn doping on the growth of In2O3 on Y-stabilized ZrO2(100) by oxygen plasma assisted molecular beam epitaxy. Journal of Applied Physics, 2009, 106, .	2.5	41
45	A versatile photoelectron spectrometer for pressures up to 30 mbar. Review of Scientific Instruments, 2014, 85, 075119.	1.3	41
46	Reversible Redox Cycling of Well-Defined, Ultrasmall Cu/Cu₂O Nanoparticles. ACS Nano, 2017, 11, 2714-2723.	14.6	41
47	A study of core and valence levels in Î²-PbO2 by hard X-ray photoemission. Journal of Electron Spectroscopy and Related Phenomena, 2009, 169, 26-34.	1.7	40
48	Nature of electronic states at the Fermi level of metallicÎ²â^'PbO2revealed by hard x-ray photoemission spectroscopy. Physical Review B, 2007, 75, .	3.2	38
49	Valence-band orbital character of CdO: A synchrotron-radiation photoelectron spectroscopy and density functional theory study. Physical Review B, 2014, 89, .	3.2	38
50	Sub-second photonic processing of solution-deposited single layer and heterojunction metal oxide thin-film transistors using a high-power xenon flash lamp. Journal of Materials Chemistry C, 2017, 5, 11724-11732.	5.5	37
51	Comparative study of bandwidths in copper delafossites from x-ray emission spectroscopy. Physical Review B, 2009, 80, .	3.2	36
52	Electrochemical Synthesis of PbO2, Pb3O4 and PbO Films on a Transparent Conducting Substrate. Electrochimica Acta, 2015, 156, 283-288.	5.2	36
53	Modular and Versatile Spatial Functionalization of Tissue Engineering Scaffolds through Fiberâ€Initiated Controlled Radical Polymerization. Advanced Functional Materials, 2015, 25, 5748-5757.	14.9	35
54	The impact of post-deposition annealing on the performance of solution-processed single layer In₂O₃ and isotype In₂O₃/ZnO heterojunction transistors. Journal of Materials Chemistry C, 2017, 5, 59-64.	5.5	34

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55	The dual role of Parylene C in chemical sensing: Acting as an encapsulant and as a sensing membrane for pH monitoring applications. Sensors and Actuators B: Chemical, 2013, 186, 1-8.	7.8	32
56	A theoretical and experimental study of the distorted pyrochlore Bi2Sn2O7. Journal of Materials Chemistry, 2006, 16, 3452.	6.7	30
57	Revisiting the origin of satellites in core-level photoemission of transparent conducting oxides: The case of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>n</mml:mi></mml:math> -doped <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>SnO</mml:mi><mml:mn>2</mml:mn></mml:msub></mml Physical Review B, 2018, 97, .	3.2	30
58	Electronic and surface properties of Ga-doped In2O3 ceramics. Applied Surface Science, 2015, 349, 970-982.	6.1	29
59	Growth of Microscale In₂O₃ Islands on Y-Stabilized Zirconia(100) by Molecular Beam Epitaxy. Chemistry of Materials, 2008, 20, 4551-4553.	6.7	28
60	Hard x-ray photoelectron spectroscopy as a probe of the intrinsic electronic properties of CdO. Physical Review B, 2014, 89, .	3.2	28
61	Electron Hopping Across Heminâ€Doped Serum Albumin Mats on Centimeterâ€Length Scales. Advanced Materials, 2017, 29, 1700810.	21.0	26
62	Quantifying the critical thickness of electron hybridization in spintronics materials. Nature Communications, 2017, 8, 16051.	12.8	26
63	Surface Termination and CO₂ Adsorption onto Bismuth Pyrochlore Oxides. Chemistry of Materials, 2016, 28, 90-96.	6.7	25
64	Effects of low temperature annealing on the photo-electrochemical performance of tin-doped hematite photo-anodes. Electrochimica Acta, 2017, 251, 1-11.	5.2	25
65	Adsorbate-induced structural evolution changes the mechanism of CO oxidation on a Rh/Fe₃O₄(001) model catalyst. Nanoscale, 2020, 12, 5866-5875.	5.6	25
66	A study of the pressure profiles near the first pumping aperture in a high pressure photoelectron spectrometer. Journal of Electron Spectroscopy and Related Phenomena, 2015, 205, 57-65.	1.7	24
67	The synergistic effect of cobalt oxide and Gd-CeO₂ dual infiltration in LSCF/CGO cathodes. Journal of Materials Chemistry A, 2018, 6, 5071-5081.	10.3	24
68	Exsolution of Catalytically Active Iridium Nanoparticles from Strontium Titanate. ACS Applied Materials & Interfaces, 2020, 12, 37444-37453.	8.0	24
69	A solution chemistry approach to epitaxial growth and stabilisation of Bi₂Ti₂O₇ films. Journal of Materials Chemistry A, 2014, 2, 18241-18245.	10.3	23
70	Increased photoelectron transmission in High-pressure photoelectron spectrometers using â€œswift accelerationâ€• Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2015, 785, 191-196.	1.6	22
71	Low temperature methane conversion with perovskite-supported exo/endo-particles. Journal of Materials Chemistry A, 2020, 8, 12406-12417.	10.3	22
72	A comparative study of the electronic structures of SrCu2O2 and PbCu2O2 by density functional theory, high resolution X-ray photoemission and electron paramagnetic resonance spectroscopy. Journal of Materials Chemistry, 2008, 18, 2798.	6.7	21

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73	The electronic structure of silver orthophosphate: experiment and theory. Journal of Materials Chemistry A, 2014, 2, 6092-6099.	10.3	21
74	Interfacial Diffusion during Growth of SnO₂(110) on TiO₂(110) by Oxygen Plasma Assisted Molecular Beam Epitaxy. Crystal Growth and Design, 2009, 9, 1793-1797.	3.0	20
75	Determination of the Poisson ratio of (001) and (111) oriented thin films of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mi>In</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">O</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:mrow></mml:math>by synchrotron based x-ray diffraction. Physical Review B, 2011, 84, .	3.2	20
76	Direct measurement of Ni incorporation into Fe₃O₄(001). Physical Chemistry Chemical Physics, 2018, 20, 16469-16476.	2.8	20
77	Identification of Lone-Pair Surface States on Indium Oxide. Journal of Physical Chemistry C, 2019, 123, 1700-1709.	3.1	20
78	Scalable High-Affinity Stabilization of Magnetic Iron Oxide Nanostructures by a Biocompatible Antifouling Homopolymer. ACS Applied Materials & Interfaces, 2017, 9, 40059-40069.	8.0	19
79	Copper (I) Selenocyanate (CuSeCN) as a Novel Holeâ€Transport Layer for Transistors, Organic Solar Cells, and Lightâ€Emitting Diodes. Advanced Functional Materials, 2018, 28, 1707319.	14.9	19
80	Rapid photonic curing of solution-processed In2O3 layers on flexible substrates. Applied Surface Science, 2019, 479, 974-979.	6.1	19
81	Three-Dimensional Spatial Distribution of Cr atoms in Doped Indium Oxide. Chemistry of Materials, 2011, 23, 1085-1087.	6.7	18
82	Structure and composition of linear TiO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mi>x</mml:mi></mml:msub></mml:math>nanostructures on SrTiO<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>3</mml:mn></mml:msub></mml:math>(001). Physical Review B, 2012, 86, .	3.2	18
83	A â€œcleanroom-freeâ€•and scalable manufacturing technology for the microfluidic generation of lipid-stabilized droplets and cell-sized multisomes. Sensors and Actuators B: Chemical, 2018, 267, 34-41.	7.8	17
84	Direct insight into the band structure of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>SrNbO</mml:mi><mml:mn>3</mml:mn></mml:msub></mml:math>from Physical Review Materials, 2020, 4, .	2.4	17
85	Quantum Confinement and Thicknessâ€Dependent Electron Transport in Solutionâ€Processed In₂O₃ Transistors. Advanced Electronic Materials, 2020, 6, 2000682.	5.1	16
86	Valence States in CeVO₄ and Ce_{0.5}Bi_{0.5}VO₄ Probed by Density Functional Theory Calculations and X-ray Photoemission Spectroscopy. Journal of Physical Chemistry C, 2014, 118, 25330-25339.	3.1	14
87	Role of spin-orbit coupling in the electronic structure of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Ir</mml:mi><mml:msub><mml:mi mathvariant="normal">O</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:mrow></mml:math>. Physical Review Materials, 2018, 2, .	2.4	14
88	Iridium's impact. Nature Chemistry, 2016, 8, 392-392.	13.6	13
89	Nanostructuring of SnO2 via solution-based and hard template assisted method. Thin Solid Films, 2017, 626, 38-45.	1.8	12
90	Water uptake analysis of acceptor-doped lanthanum orthoniobates. Journal of Thermal Analysis and Calorimetry, 2019, 138, 225-232.	3.6	12

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91	Validation of the inverted adsorption structure for free-base tetraphenyl porphyrin on Cu(111). Chemical Communications, 2020, 56, 3681-3684.	4.1	11
92	A study of the metal to nonmetal transition in Bi-doped Î²â€PbO2 by high resolution x-ray photoemission. Journal of Applied Physics, 2007, 102, 113717.	2.5	10
93	Laboratory-based high pressure X-ray photoelectron spectroscopy: A novel and flexible reaction cell approach. Review of Scientific Instruments, 2017, 88, 033102.	1.3	10
94	Electron spectroscopy of ionic liquids: experimental identification of atomic orbital contributions to valence electronic structure. Physical Chemistry Chemical Physics, 2019, 21, 18893-18910.	2.8	9
95	Insights into the electronic structure of OsO2 using soft and hard x-ray photoelectron spectroscopy in combination with density functional theory. Physical Review Materials, 2019, 3, .	2.4	9
96	The Reduction Properties of Mâ€“Doped (M=Zr, Gd) CeO₂/YSZ Scaffolds Coâ€“Infiltrated with Nickel. Energy Technology, 2018, 6, 2045-2052.	3.8	8
97	Identification of metal s states in Sn-doped anatase by polarisation dependent hard X-ray photoelectron spectroscopy. Chemical Physics Letters, 2016, 647, 59-63.	2.6	7
98	The electronic structure of SrCu2O2 studied by synchrotron radiation excited photoemission and hybrid exchange density functional calculations. Chemical Physics Letters, 2007, 450, 39-43.	2.6	6
99	A Comparison of Explicitlyâ€terminated Diamond Electrodes Decorated with Gold Nanoparticles. Electroanalysis, 2016, 28, 88-95.	2.9	6
100	Nanoscale Structureâ€“Property Relationships in Low-Temperature Solution-Processed Electron Transport Layers for Organic Photovoltaics. Crystal Growth and Design, 2017, 17, 6559-6564.	3.0	6
101	The influence of oxygen on the surface interaction between CO2 and copper studied by ambient pressure X-ray photoelectron spectroscopy. Surface Science, 2018, 677, 121-127.	1.9	6
102	Antimony substituted lanthanum orthoniobate proton conductor â€“ Structure and electronic properties. Journal of the American Ceramic Society, 2020, 103, 6575-6585.	3.8	6
103	Cross section and resonance effects in photoemission from Sn-doped In2O3(111). Solid State Communications, 2012, 152, 194-198.	1.9	5
104	High-Vacuum Deposition of Biferrocene Thin Films on Room-Temperature Substrates. Chemistry of Materials, 2017, 29, 8663-8669.	6.7	4
105	Electronic Structure of Lanthanide-Doped Bismuth Vanadates: A Systematic Study by X-ray Photoelectron and Optical Spectroscopies. Journal of Physical Chemistry C, 2019, 123, 8484-8499.	3.1	4
106	Probing structural changes upon carbon monoxide coordination to single metal adatoms. Journal of Chemical Physics, 2020, 152, 051102.	3.0	4
107	Photon energy dependence of final state screening in a dilute electron gas system: A synchrotron radiation photoemission study of Î²-PbO2. Chemical Physics Letters, 2007, 443, 61-65.	2.6	3
108	Identification of hidden orbital contributions in the <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>La</mml:mi><mml:mrow><mml:mn>0.65</mml:mn></mml:mrow></mml:msub></mml:mrow></mml:math> valence band. Physical Review Materials, 2021, 5, .	2.4	2

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109	Quantitative structure determination of adsorbed formate and surface hydroxyls on Fe₃O₄(001). Physical Chemistry Chemical Physics, 2021, 24, 488-496.	2.8	1