Apurva Mehta

List of Publications by Year
in descending order

68 papers	4,113 citations	201674 27 h-index	114465 63 g-index
70 all docs	70 docs citations	70 times ranked	5995 citing authors

#	Article	IF	Citations
1	Enhanced ferroelectricity in ultrathin films grown directly on silicon. Nature, 2020, 580, 478-482.	27.8	486
2	Accelerated discovery of metallic glasses through iteration of machine learning and high-throughput experiments. Science Advances, 2018, 4, eaaq1566.	10.3	354
3	Towards identifying the active sites on RuO₂(110) in catalyzing oxygen evolution. Energy and Environmental Science, 2017, 10, 2626-2637.	30.8	278
4	Three-dimensional imaging of chemical phase transformations at the nanoscale with full-field transmission X-ray microscopy. Journal of Synchrotron Radiation, 2011, 18, 773-781.	2.4	228
5	On-the-fly machine-learning for high-throughput experiments: search for rare-earth-free permanent magnets. Scientific Reports, 2014, 4, 6367.	3.3	212
6	Giant magnetostriction in annealed Co1âˆ’xFex thin-films. Nature Communications, 2011, 2, 518.	12.8	188
7	Oxidation State and Surface Reconstruction of Cu under CO₂ Reduction Conditions from <i>In Situ</i> X-ray Characterization. Journal of the American Chemical Society, 2021, 143, 588-592.	13.7	172
8	On-the-fly closed-loop materials discovery via Bayesian active learning. Nature Communications, 2020, 11, 5966.	12.8	167
9	Operando identification of site-dependent water oxidation activity on ruthenium dioxide single-crystal surfaces. Nature Catalysis, 2020, 3, 516-525.	34.4	166
10	Phase selection motifs in High Entropy Alloys revealed through combinatorial methods: Large atomic size difference favors BCC over FCC. Acta Materialia, 2019, 166, 677-686.	7.9	158
11	Can machine learning identify the next high-temperature superconductor? Examining extrapolation performance for materials discovery. Molecular Systems Design and Engineering, 2018, 3, 819-825.	3.4	149
12	Autonomous experimentation systems for materials development: A community perspective. Matter, 2021, 4, 2702-2726.	10.0	143
13	Materials science in the artificial intelligence age: high-throughput library generation, machine learning, and a pathway from correlations to the underpinning physics. MRS Communications, 2019, 9, 821-838.	1.8	109
14	Ultrathin ferroic HfO2â€“ZrO2 superlattice gate stack for advanced transistors. Nature, 2022, 604, 65-71.	27.8	108
15	Absence of Oxidized Phases in Cu under CO Reduction Conditions. ACS Energy Letters, 2019, 4, 803-804.	17.4	97
16	Garnet Electrolyte Surface Degradation and Recovery. ACS Applied Energy Materials, 2018, 1, 7244-7252.	5.1	81
17	Full-field XANES analysis of Roman ceramics to estimate firing conditionsâ€”A novel probe to study hierarchical heterogeneous materials. Journal of Analytical Atomic Spectrometry, 2013, 28, 1870.	3.0	63
18	Nitride or Oxynitride? Elucidating the Compositionâ€“Activity Relationships in Molybdenum Nitride Electrocatalysts for the Oxygen Reduction Reaction. Chemistry of Materials, 2020, 32, 2946-2960.	6.7	57

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19	Dynamic Optical Tuning of Interlayer Interactions in the Transition Metal Dichalcogenides. Nano Letters, 2017, 17, 7761-7766.	9.1	46
20	Surface Orientation Dependent Water Dissociation on Rutile Ruthenium Dioxide. Journal of Physical Chemistry C, 2018, 122, 17802-17811.	3.1	44
21	Finding a Needle in the Haystack: Identification of Functionally Important Minority Phases in an Operating Battery. Nano Letters, 2017, 17, 7782-7788.	9.1	42
22	Copper Silver Thin Films with Metastable Miscibility for Oxygen Reduction Electrocatalysis in Alkaline Electrolytes. ACS Applied Energy Materials, 2018, 1, 1990-1999.	5.1	40
23	Electrochemical flow cell enabling <i>operando</i> probing of electrocatalyst surfaces by X-ray spectroscopy and diffraction. Physical Chemistry Chemical Physics, 2019, 21, 5402-5408.	2.8	38
24	Ionic tuning of cobaltites at the nanoscale. Physical Review Materials, 2018, 2, .	2.4	32
25	Nanoparticle de-acidification of the Mary Rose. Materials Today, 2011, 14, 354-358.	14.2	31
26	A High-Throughput Structural and Electrochemical Study of Metallic Glass Formation in Niâ€“Tiâ€“Al. ACS Combinatorial Science, 2020, 22, 330-338.	3.8	31
27	In Situ X-Ray Absorption Spectroscopy Disentangles the Roles of Copper and Silver in a Bimetallic Catalyst for the Oxygen Reduction Reaction. Chemistry of Materials, 2020, 32, 1819-1827.	6.7	30
28	Voltage-Controlled Interfacial Layering in an Ionic Liquid on SrTiO₃. ACS Nano, 2016, 10, 4565-4569.	14.6	29
29	Impact of thermomechanical texture on the superelastic response of Nitinol implants. Journal of the Mechanical Behavior of Biomedical Materials, 2011, 4, 1431-1439.	3.1	28
30	A high-throughput investigation of Feâ€“Crâ€“Al as a novel high-temperature coating for nuclear cladding materials. Nanotechnology, 2015, 26, 274003.	2.6	28
31	Unconventional switching behavior in La0.7Sr0.3MnO3/La0.7Sr0.3CoO3 exchange-spring bilayers. Applied Physics Letters, 2014, 105, .	3.3	26
32	The Different Roles of Entropy and Solubility in High Entropy Alloy Stability. ACS Combinatorial Science, 2016, 18, 596-603.	3.8	26
33	The nature of marbled Terra Sigillata slips: a combined Î¼XRF andÂÎ¼XRD investigation. Applied Physics A: Materials Science and Processing, 2010, 99, 419-425.	2.3	24
34	Unsupervised Data Mining in nanoscale X-ray Spectro-Microscopic Study of NdFeB Magnet. Scientific Reports, 2016, 6, 34406.	3.3	23
35	Enhanced lithium ion transport in garnet-type solid state electrolytes. Journal of Electroceramics, 2017, 38, 168-175.	2.0	22
36	Tuning interfacial exchange interactions via electronic reconstruction in transition-metal oxide heterostructures. Applied Physics Letters, 2016, 109, .	3.3	19

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37	High Throughput Light Absorber Discovery, Part 2: Establishing Structureâ€“Band Gap Energy Relationships. ACS Combinatorial Science, 2016, 18, 682-688.	3.8	19
38	Strontium carbonate nanoparticles for the surface treatment of problematic sulfur and iron in waterlogged archaeological wood. Journal of Cultural Heritage, 2016, 18, 306-312.	3.3	19
39	On-the-Fly Data Assessment for High-Throughput X-ray Diffraction Measurements. ACS Combinatorial Science, 2017, 19, 377-385.	3.8	19
40	Exploring the First High-Entropy Thin Film Libraries: Composition Spread-Controlled Crystalline Structure. ACS Combinatorial Science, 2020, 22, 858-866.	3.8	19
41	The Complexity of the CaF₂:Yb System: A Huge, Reversible, X-ray-Induced Valence Reduction. Journal of Physical Chemistry C, 2017, 121, 28435-28442.	3.1	17
42	Evidence That the Anomalous Emission from CaF₂:Yb²⁺ Is Not Described by the Impurity Trapped Exciton Model. Journal of Physical Chemistry Letters, 2017, 8, 3313-3316.	4.6	17
43	Identifying and Tuning the In Situ Oxygen-Rich Surface of Molybdenum Nitride Electrocatalysts for Oxygen Reduction. ACS Applied Energy Materials, 2020, 3, 12433-12446.	5.1	17
44	Controlling Magnetization Vector Depth Profiles of La_{0.7}Sr_{0.3}CoO₃/La_{0.7}Sr_{0.3}MnO₃ Exchange Spring Bilayers via Interface Reconstruction. ACS Applied Materials & Interfaces, 2020, 12, 45437-45443.	8.0	16
45	Highly Efficient Uniaxial Inâ€Plane Stretching of a 2D Material via Ion Insertion. Advanced Materials, 2021, 33, e2101875.	21.0	16
46	Synthesis of Lanthanum Tungsten Oxynitride Perovskite Thin Films. Advanced Electronic Materials, 2019, 5, 1900214.	5.1	15
47	Exchange coupling in (111)-oriented<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi mathvariant="normal">L</mml:mi><mml:msub><mml:mi mathvariant="normal">a</mml:mi><mml:mrow><mml:mn>0.7</mml:mn></mml:mrow></mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:msub><mml:mi mathvariant="normal">r</mml:mi><mml:mrow><mml:mn>0.3</mml:mn></mml:mrow></mml:msub><mml:mi>Mn</mml:mi><mml:msu	3.2	13
48	In Situ Characterization of Ferroelectric HfO₂ During Rapid Thermal Annealing. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2000598.	2.4	12
49	Discovering exceptionally hard and wear-resistant metallic glasses by combining machine-learning with high throughput experimentation. Applied Physics Reviews, 2022, 9, .	11.3	12
50	An Inter-Laboratory Study of Znâ€“Snâ€“Tiâ€“O Thin Films using High-Throughput Experimental Methods. ACS Combinatorial Science, 2019, 21, 350-361.	3.8	11
51	Visualizing Energy Transfer at Buried Interfaces in Layered Materials Using Picosecond Xâ€Rays. Advanced Functional Materials, 2020, 30, 2002282.	14.9	11
52	Dynamics and Hysteresis of Hydrogen Intercalation and Deintercalation in Palladium Electrodes: A Multimodal <i>In Situ</i> X-ray Diffraction, Coulometry, and Computational Study. Chemistry of Materials, 2021, 33, 5872-5884.	6.7	11
53	Combinatorial Exploration and Mapping of Phase Transformation in a Niâ€“Tiâ€“Co Thin Film Library. ACS Combinatorial Science, 2020, 22, 641-648.	3.8	10
54	High-throughput characterization of Agâ€“Vâ€“O nanostructured thin-film materials libraries for photoelectrochemical solar water splitting. International Journal of Hydrogen Energy, 2020, 45, 12037-12047.	7.1	10

#	Article	IF	Citations
55	High-Throughput Characterization of (Fe_{<i>x</i>}Co_{1â€“<i>x</i>})₃O₄ Thin-Film Composition Spreads. ACS Combinatorial Science, 2020, 22, 804-812.	3.8	9
56	Structural and photoelectrochemical properties in the thin film system Cuâ€“Feâ€“Vâ€“O and its ternary subsystems Feâ€“Vâ€“O and Cuâ€“Vâ€“O. Journal of Chemical Physics, 2020, 153, 014707.	3.0	7
57	Cation and anion topotactic transformations in cobaltite thin films leading to Ruddlesden-Popper phases. Physical Review Materials, 2021, 5, .	2.4	7
58	Decoupling exchange bias and coercivity enhancement in a perovskite oxide exchange spring bilayer. Physical Review Materials, 2019, 3, .	2.4	7
59	Towards Automated Design of Corrosion Resistant Alloy Coatings with an Autonomous Scanning Droplet Cell. Jom, 2022, 74, 2941-2950.	1.9	7
60	A refraction correction for buried interfaces applied to <i>in situ</i> grazing-incidence X-ray diffraction studies on Pd electrodes. Journal of Synchrotron Radiation, 2021, 28, 919-923.	2.4	6
61	Physics in the Machine: Integrating Physical Knowledge in Autonomous Phase-Mapping. Frontiers in Physics, 2022, 10, .	2.1	6
62	Phase stabilization and oxidation of a continuous composition spread multi-principal element (AlFeNiTiVZr)1â^'xCrx alloy. Journal of Alloys and Compounds, 2021, 861, 158565.	5.5	5
63	CeO₂ Doping of Hf_{0.5}Zr_{0.5}O₂ Thin Films for High Endurance Ferroelectric Memories. Advanced Electronic Materials, 2022, 8, .	5.1	5
64	High-Throughput Exploration of Lithium-Alloy Protection Layers for High-Performance Lithium-Metal Batteries. ACS Applied Energy Materials, 2020, 3, 2547-2555.	5.1	4
65	Monitoring Deformation in Graphene Through Hyperspectral Synchrotron Spectroscopy to Inform Fabrication. Journal of Physical Chemistry C, 2017, 121, 15653-15664.	3.1	3
66	Thin-Film Paradigm to Probe Interfacial Diffusion during Solid-State Metathesis Reactions. Chemistry of Materials, 2022, 34, 6279-6287.	6.7	3
67	On-the-fly segmentation approaches for x-ray diffraction datasets for metallic glasses. MRS Communications, 2017, 7, 613-620.	1.8	1
68	Characterization data of an (AlFeNiTiVZr)1-xCrx multi-principal element alloy continuous composition spread library. Data in Brief, 2021, 34, 106758.	1.0	1