Rahul Rao

List of Publications by Year
in descending order

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86	4,692	159585 30	98798 67
papers	citations	h-index	g-index

87	87	87	8374
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Defect engineering of two-dimensional transition metal dichalcogenides. 2D Materials, 2016, 3, 022002.	4.4	736
2	Strain engineering and epitaxial stabilization of halide perovskites. Nature, 2020, 577, 209-215.	27.8	417
3	Carbon Nanotubes and Related Nanomaterials: Critical Advances and Challenges for Synthesis toward Mainstream Commercial Applications. ACS Nano, 2018, 12, 11756-11784.	14.6	388
4	Emerging Applications of Elemental 2D Materials. Advanced Materials, 2020, 32, e1904302.	21.0	336
5	Autonomy in materials research: a case study in carbon nanotube growth. Npj Computational Materials, 2016, 2, .	8.7	233
6	In situ evidence for chirality-dependent growth rates of individual carbon nanotubes. Nature Materials, 2012, 11, 213-216.	27.5	195
7	Effects of Layer Stacking on the Combination Raman Modes in Graphene. ACS Nano, 2011, 5, 1594-1599.	14.6	189
8	Blueshifted Raman scattering and its correlation with the [110] growth direction in gallium oxide nanowires. Journal of Applied Physics, 2005, 98, 094312.	2.5	162
9	Enhanced Conductivity, Adhesion, and Environmental Stability of Printed Graphene Inks with Nitrocellulose. Chemistry of Materials, 2017, 29, 2332-2340.	6.7	134
10	Growth, nitrogen doping and characterization of isolated single-wall carbon nanotubes using liquid precursors. Chemical Physics Letters, 2005, 412, 269-273.	2.6	91
11	Determination of Carbon Nanotube Density by Gradient Sedimentation. Journal of Physical Chemistry B, 2006, 110, 24371-24376.	2.6	89
12	Catalyst discovery through megalibraries of nanomaterials. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 40-45.	7.1	77
13	Phonon anharmonicity in single-crystalline SnSe. Physical Review B, 2018, 98, .	3.2	76
14	Co-synthesis, purification and characterization of single- and multi-walled carbon nanotubes using the electric arc method. Carbon, 2007, 45, 132-140.	10.3	75
15	Deterministic switching of a perpendicularly polarized magnet using unconventional spinâ€“orbit torques in WTe2. Nature Materials, 2022, 21, 1029-1034.	27.5	75
16	Polytypism in ultrathin tellurium. 2D Materials, 2019, 6, 015013.	4.4	68
17	Spectroscopic evaluation of charge-transfer doping and strain in graphene/ <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi>MoS</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:math> heterostructures. Physical Review B, 2019, 99, .	3.2	63
18	Revealing the Impact of Catalyst Phase Transition on Carbon Nanotube Growth byin SituRaman Spectroscopy. ACS Nano, 2013, 7, 1100-1107.	14.6	60

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19	Graphene as an atomically thin interface for growth of vertically aligned carbon nanotubes. Scientific Reports, 2013, 3, 1891.	3.3	54
20	Raman Spectroscopy of Folded and Scrolled Graphene. ACS Nano, 2012, 6, 5784-5790.	14.6	51
21	In situ thermal oxidation kinetics in few layer MoS ₂. 2D Materials, 2017, 4, 025058.	4.4	49
22	Insights into carbon nanotube nucleation: Cap formation governed by catalyst interfacial step flow. Scientific Reports, 2014, 4, 6510.	3.3	46
23	Photonic crystallization of two-dimensional MoS₂ for stretchable photodetectors. Nanoscale, 2019, 11, 13260-13268.	5.6	43
24	Dynamics of cleaning, passivating and doping monolayer MoS ₂ by controlled laser irradiation. 2D Materials, 2019, 6, 045031.	4.4	40
25	High zT and Its Origin in Sbâ€doped GeTe Single Crystals. Advanced Science, 2020, 7, 2002494.	11.2	36
26	Efficient Closed-loop Maximization of Carbon Nanotube Growth Rate using Bayesian Optimization. Scientific Reports, 2020, 10, 9040.	3.3	36
27	Photo-thermal oxidation of single layer graphene. RSC Advances, 2016, 6, 42545-42553.	3.6	32
28	Laser-assisted synthesis and optical properties of bismuth nanorods. Chemical Physics Letters, 2007, 442, 334-338.	2.6	31
29	Double resonance Raman study of disorder in CVD-grown single-walled carbon nanotubes. Carbon, 2011, 49, 1318-1325.	10.3	31
30	Growth of high quality, high density single-walled carbon nanotube forests on copper foils. Carbon, 2016, 98, 624-632.	10.3	31
31	In situ crystallization kinetics of two-dimensional MoS ₂. 2D Materials, 2018, 5, 011009.	4.4	31
32	Structure of carbon fiber obtained from nanotube-reinforced mesophase pitch. Carbon, 2003, 41, 1419-1424.	10.3	29
33	Multiphonon Raman scattering in graphene. Physical Review B, 2011, 84, .	3.2	29
34	Origin of Excess Irreversible Capacity in Lithium-Ion Batteries Based on Carbon Nanostructures. Journal of the Electrochemical Society, 2015, 162, A2106-A2115.	2.9	29
35	Single-molecule fluorescence microscopy and Raman spectroscopy studies of RNA bound carbon nanotubes. Applied Physics Letters, 2004, 85, 4228-4230.	3.3	28
36	Isolating the Roles of Hydrogen Exposure and Trace Carbon Contamination on the Formation of Active Catalyst Populations for Carbon Nanotube Growth. ACS Nano, 2019, 13, 8736-8748.	14.6	28

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37	Diffusion of carbon nanotubes with single-molecule fluorescence microscopy. Journal of Applied Physics, 2004, 96, 6772-6775.	2.5	25
38	Lattice anharmonicity in lowâ€dimensional carbon systems. Physica Status Solidi (B): Basic Research, 2008, 245, 2149-2154.	1.5	25
39	On the charge transfer between single-walled carbon nanotubes and graphene. Applied Physics Letters, 2014, 105, 073115.	3.3	25
40	Nanocrystalline Graphite for Electrochemical Sensing. Journal of the Electrochemical Society, 2005, 152, E154.	2.9	23
41	Graphene-Based Electrolyte-Gated Field-Effect Transistors for Potentiometrically Sensing Neuropeptide Y in Physiologically Relevant Environments. ACS Applied Nano Materials, 2020, 3, 5088-5097.	5.0	23
42	Single-walled carbon nanotube growth from liquid gallium and indium. Carbon, 2010, 48, 3971-3973.	10.3	22
43	Catalytic CVD growth of millimeter-tall single-wall carbon nanotube carpets using industrial gaseous waste as a feedstock. Carbon, 2017, 116, 181-190.	10.3	22
44	Large-area ultrathin Te films with substrate-tunable orientation. Nanoscale, 2020, 12, 12613-12622.	5.6	22
45	Synthesis of low-melting metal oxide and sulfide nanowires and nanobelts. Journal of Electronic Materials, 2006, 35, 941-946.	2.2	21
46	A micro-Raman study of exfoliated few-layered n-type Bi2 Te2.7Se0.3. Scientific Reports, 2017, 7, 16535.	3.3	20
47	Temperature-dependent Raman scattering and x-ray diffraction study of phase transitions in layered multiferroic CuCrP2S6. Physical Review Materials, 2020, 4, .	2.4	19
48	Influence of carbon nanotube dispersion on the mechanical properties of phenolic resin composites. Polymer Composites, 2010, 31, 321-327.	4.6	17
49	Probing inhomogeneous doping in overlapped graphene grain boundaries by Raman spectroscopy. Carbon, 2014, 80, 513-522.	10.3	17
50	Molecular-Level Insights into Biologically Driven Graphite Exfoliation for the Generation of Graphene in Aqueous Media. Journal of Physical Chemistry C, 2020, 124, 2219-2228.	3.1	17
51	Large-area optoelectronic-grade InSe thin films via controlled phase evolution. Applied Physics Reviews, 2020, 7, .	11.3	17
52	Anharmonic Phonon Lifetimes in Carbon Nanotubes: Evidence for a One-Dimensional Phonon Decay Bottleneck. Physical Review Letters, 2007, 99, 047403.	7.8	16
53	Chiral angle-dependent defect evolution in CVD-grown single-walled carbon nanotubes. Carbon, 2015, 95, 287-291.	10.3	15
54	Defect engineering of graphene using electron-beam chemistry with radiolyzed water. Carbon, 2020, 166, 446-455.	10.3	15

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55	Synthesis and Electrochemical Characteristics of a Nanocomposite Diamond Electrode. Electrochemical and Solid-State Letters, 2002, 5, E32.	2.2	14
56	Material composition and peptide sequence affects biomolecule affinity to and selectivity for h-boron nitride and graphene. Chemical Communications, 2020, 56, 8834-8837.	4.1	14
57	Coupling of photon energy via a multiwalled carbon nanotube array. Applied Physics Letters, 2005, 87, 173102.	3.3	13
58	Hierarchical Assembly of Gold Nanoparticles on Graphene Nanoplatelets by Spontaneous Reduction: Implications for Smart Composites and Biosensing. ACS Applied Nano Materials, 2020, 3, 8753-8762.	5.0	13
59	Ultrasensitive Molecular Sensors Based on Realâ€Time Impedance Spectroscopy in Solutionâ€Processed 2D Materials. Advanced Functional Materials, 2022, 32, 2106830.	14.9	13
60	Anisotropic elasticity drives negative thermal expansion in monocrystalline SnSe. Physical Review B, 2021, 103, .	3.2	11
61	Reversibly Tailoring Optical Constants of Monolayer Transition Metal Dichalcogenide MoS₂ Films: Impact of Dopant-Induced Screening from Chemical Adsorbates and Mild Film Degradation. ACS Photonics, 2021, 8, 1705-1717.	6.6	11
62	Advanced machine learning decision policies for diameter control of carbon nanotubes. Npj Computational Materials, 2021, 7, .	8.7	11
63	Nanoscale Silicon as a Catalyst for Graphene Growth: Mechanistic Insight from in Situ Raman Spectroscopy. Journal of Physical Chemistry C, 2016, 120, 14180-14186.	3.1	10
64	Maximization of carbon nanotube yield by solid carbon-assisted dewetting of iron catalyst films. Carbon, 2020, 165, 251-258.	10.3	10
65	Interaction of gases with monolayer WS₂: an in situ spectroscopy study. Nanoscale, 2021, 13, 11470-11477.	5.6	10
66	Pressure-driven phase transformations and phase segregation in ferrielectric <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>CuIn</mml:mi><mml:msub><mml:mi mathvariant="normal">P</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:mn>6</mml:mn></mml:msub><mml:mtext>â^'</mml:mtext><mml:msub><mml:mi>In</mml:mi><mml:mi mathvariant="normal">P</mml:mi><m. Physical Review B, 2021, 104, .	3.2	10
67	Atmospheric pressure growth and optimization of graphene using liquid-injection chemical vapor deposition. Materials Express, 2015, 5, 541-546.	0.5	9
68	Ferrielectric-paraelectric phase transitions in layered <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>CuInP</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:mn>6</mml:mn></mml:msub></mml:mrow></mml:math> and <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msub><mml:mi>CuInP</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:mn>6</mml:mn></mml:msub></mml:mrow><mm. Physical Revie	2.4	8
69	Understanding the Role of Sulfur in Tuning the Diameter and Morphology in the Chemical Vapor Deposition Growth of Carbon Nanotubes. Materials Express, 2011, 1, 160-166.	0.5	7
70	Zeolite Nanosheets Stabilize Catalyst Particles to Promote the Growth of Thermodynamically Unfavorable, Smallâ€Diameter Carbon Nanotubes. Small, 2020, 16, e2002120.	10.0	7
71	Identification of Parameters Controlling Peptide-Driven Graphene Exfoliation in Aqueous Media. Langmuir, 2021, 37, 1152-1163.	3.5	7
72	Enhancement of Vertically Aligned Carbon Nanotube Growth Kinetics and Doubling of the Height by Graphene Interface. Journal of Physical Chemistry C, 2014, 118, 22243-22248.	3.1	5

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73	Efficient Growth of Carbon Nanotube Carpets Enabled by In Situ Generation of Water. Industrial & Engineering Chemistry Research, 2020, 59, 9095-9104.	3.7	5
74	Phonon anharmonicity in binary chalcogenides for efficient energy harvesting. Materials Horizons, 2022, 9, 1602-1622.	12.2	5
75	High Throughput Data-Driven Design of Laser-Crystallized 2D MoS₂ Chemical Sensors: A Demonstration for NO₂ Detection. ACS Applied Nano Materials, 2022, 5, 7549-7561.	5.0	5
76	Scattering strength of the scatterer inducing variability in graphene on silicon oxide. Journal of Physics Condensed Matter, 2016, 28, 115301.	1.8	3
77	Time-order Phonon Scattering Processes are Responsible for the Asymmetric G* Raman Band in Graphene. Recent Patents on Materials Science, 2018, 11, 24-32.	0.5	2
78	Gaussian Process Surrogate Modeling Under Control Uncertainties for Yield Prediction of Carbon Nanotube Production Processes. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2022, 144, .	2.2	2
79	Patterned graphene: Analysis of the electronic structure and electron transport by first principles computational modeling. Applied Surface Science, 2022, 589, 152953.	6.1	2
80	High-Throughput Experimentation for Selective Growth of Small-Diameter Single-Wall Carbon Nanotubes Using Ru-Promoted Co Catalysts. Chemistry of Materials, 2022, 34, 4548-4559.	6.7	2
81	One-pot chemistry: Alkyne-assisted CNT growth enables in situ functionalization. MRS Bulletin, 2021, 46, 469-470.	3.5	1
82	Sequential adaptive design for jump regression estimation. IISE Transactions, 0, , 1-18.	2.4	1
83	Growth, Nitrogen Doping and Characterization of Isolated Single-Wall Carbon Nanotubes using Liquid Precursors. Materials Research Society Symposia Proceedings, 2004, 858, 146.	0.1	0
84	Growth and Characterization of 1D Bi2Te3 Nanowires. Materials Research Society Symposia Proceedings, 2005, 886, 1.	0.1	0
85	Growth and characterization of Bi/sub 2/Te/sub 3/ nanostructures. , 2005, , .		0
86	Synthesis and Optical Properties of 1D Bismuth Nanorods. Materials Research Society Symposia Proceedings, 2007, 1044, 1.	0.1	0