

# Nicolas Agrait

## List of Publications by Year in descending order

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125  
papers

11,717  
citations

44069

48  
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26613

107  
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128  
all docs

128  
docs citations

128  
times ranked

10330  
citing authors

#	ARTICLE	IF	CITATIONS
1	Quantum properties of atomic-sized conductors. <i>Physics Reports</i> , 2003, 377, 81-279.	25.6	1,404
2	Formation and manipulation of a metallic wire of single gold atoms. <i>Nature</i> , 1998, 395, 783-785.	27.8	942
3	Elastic Properties of Freely Suspended MoS <sub>2</sub> Nanosheets. <i>Advanced Materials</i> , 2012, 24, 772-775.	21.0	905
4	The signature of chemical valence in the electrical conduction through a single-atom contact. <i>Nature</i> , 1998, 394, 154-157.	27.8	597
5	Atomic-Sized Metallic Contacts: Mechanical Properties and Electronic Transport. <i>Physical Review Letters</i> , 1996, 76, 2302-2305.	7.8	539
6	Conductance steps and quantization in atomic-size contacts. <i>Physical Review B</i> , 1993, 47, 12345-12348.	3.2	402
7	Mechanical Properties and Formation Mechanisms of a Wire of Single Gold Atoms. <i>Physical Review Letters</i> , 2001, 87, .	7.8	379
8	Measurement of interfacial shear (friction) with an ultrahigh vacuum atomic force microscope. <i>Journal of Vacuum Science &amp; Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena</i> , 1996, 14, 1289.	1.6	304
9	Enhanced superconductivity in atomically thin TaS <sub>2</sub> . <i>Nature Communications</i> , 2016, 7, 11043.	12.8	285
10	Plastic Deformation of Nanometer-Scale Gold Connective Necks. <i>Physical Review Letters</i> , 1995, 74, 3995-3998.	7.8	283
11	Variation of the Interfacial Shear Strength and Adhesion of a Nanometer-Sized Contact. <i>Langmuir</i> , 1996, 12, 3334-3340.	3.5	281
12	Optical identification of atomically thin dichalcogenide crystals. <i>Applied Physics Letters</i> , 2010, 96, .	3.3	277
13	Onset of Energy Dissipation in Ballistic Atomic Wires. <i>Physical Review Letters</i> , 2002, 88, 216803.	7.8	239
14	Strong Modulation of Optical Properties in Black Phosphorus through Strain-Engineered Rippling. <i>Nano Letters</i> , 2016, 16, 2931-2937.	9.1	199
15	Engineering the Thermopower of C <sub>60</sub> Molecular Junctions. <i>Nano Letters</i> , 2013, 13, 2141-2145.	9.1	156
16	Evolution of Conducting Channels in Metallic Atomic Contacts under Elastic Deformation. <i>Physical Review Letters</i> , 1998, 81, 2990-2993.	7.8	154
17	Incorporating single molecules into electrical circuits. The role of the chemical anchoring group. <i>Chemical Society Reviews</i> , 2015, 44, 920-942.	38.1	154
18	Spatially resolved optical absorption spectroscopy of single- and few-layer MoS <sub>2</sub> by hyperspectral imaging. <i>Nanotechnology</i> , 2016, 27, 115705.	2.6	145

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19	Electricâ€Field Screening in Atomically Thin Layers of MoS <sub>2</sub> : the Role of Interlayer Coupling. <i>Advanced Materials</i> , 2013, 25, 899-903.	21.0	143
20	Mechanical properties of freely suspended semiconducting graphene-like layers based on MoS <sub>2</sub> . <i>Nanoscale Research Letters</i> , 2012, 7, 233.	5.7	134
21	Calibration of the length of a chain of single gold atoms. <i>Physical Review B</i> , 2002, 66, .	3.2	132
22	Molecular design and control of fullerene-based bi-thermoelectric materials. <i>Nature Materials</i> , 2016, 15, 289-293.	27.5	132
23	Thermopower measurements in molecular junctions. <i>Chemical Society Reviews</i> , 2016, 45, 4285-4306.	38.1	126
24	Franckeite as a naturally occurring van der Waals heterostructure. <i>Nature Communications</i> , 2017, 8, 14409.	12.8	103
25	Universal features of electron-phonon interactions in atomic wires. <i>Physical Review B</i> , 2006, 73, .	3.2	100
26	Centimeter-Scale Synthesis of Ultrathin Layered MoO <sub>3</sub> by van der Waals Epitaxy. <i>Chemistry of Materials</i> , 2016, 28, 4042-4051.	6.7	100
27	Study of ElectronâˆPhonon Interactions in a Single Molecule Covalently Connected to Two Electrodes. <i>Nano Letters</i> , 2008, 8, 1673-1678.	9.1	94
28	Strong Quantum Confinement Effect in the Optical Properties of Ultrathin In <sub>2</sub> Se <sub>3</sub> . <i>Advanced Optical Materials</i> , 2016, 4, 1939-1943.	7.3	89
29	Fabrication and characterization of metallic nanowires. <i>Physical Review B</i> , 1997, 56, 2154-2160.	3.2	88
30	Dynamics of quartz tuning fork force sensors used in scanning probe microscopy. <i>Nanotechnology</i> , 2009, 20, 215502.	2.6	87
31	Mechanical properties of freely suspended atomically thin dielectric layers of mica. <i>Nano Research</i> , 2012, 5, 550-557.	10.4	87
32	Bias-Driven Conductance Increase with Length in Porphyrin Tapes. <i>Journal of the American Chemical Society</i> , 2018, 140, 12877-12883.	13.7	84
33	Unambiguous <i>One</i> -Molecule Conductance Measurements under Ambient Conditions. <i>Nano Letters</i> , 2011, 11, 2236-2241.	9.1	81
34	Atomically Thin Mica Flakes and Their Application as Ultrathin Insulating Substrates for Graphene. <i>Small</i> , 2011, 7, 2491-2497.	10.0	81
35	Influence of Binding Groups on Molecular Junction Formation. <i>Journal of the American Chemical Society</i> , 2011, 133, 14313-14319.	13.7	80
36	Metallic Adhesion in Atomic-Size Junctions. <i>Physical Review Letters</i> , 2004, 93, 116803.	7.8	64

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37	Single-layer MoS <sub>2</sub> roughness and sliding friction quenching by interaction with atomically flat substrates. Applied Physics Letters, 2014, 105, .	3.3	64
38	Toward Multiple Conductance Pathways with Heterocycle-Based Oligo(phenyleneethynylene) Derivatives. Journal of the American Chemical Society, 2015, 137, 13818-13826.	13.7	64
39	Electron transport and phonons in atomic wires. Chemical Physics, 2002, 281, 231-234.	1.9	62
40	Break-Junction Experiments on Acetyl-Protected Conjugated Dithiols under Different Environmental Conditions. Journal of Physical Chemistry C, 2011, 115, 17973-17978.	3.1	62
41	Fast and reliable identification of atomically thin layers of TaSe <sub>2</sub> crystals. Nano Research, 2013, 6, 191-199.	10.4	62
42	Atomic-scale connective neck formation and characterization. Physical Review B, 1993, 48, 8499-8501.	3.2	61
43	Electronic Bandgap and Exciton Binding Energy of Layered Semiconductor TiS <sub>3</sub> . Advanced Electronic Materials, 2015, 1, 1500126.	5.1	59
44	A Comprehensive Study of Extended Tetrathiafulvalene Cruciform Molecules for Molecular Electronics: Synthesis and Electrical Transport Measurements. Journal of the American Chemical Society, 2014, 136, 16497-16507.	13.7	55
45	Quantum interference in atomic-sized point contacts. Physical Review B, 2000, 62, 9962-9965.	3.2	54
46	Strain engineering of Schottky barriers in single- and few-layer MoS <sub>2</sub> vertical devices. 2D Materials, 2017, 4, 021006.	4.4	54
47	High Current Density Electrical Breakdown of TiS <sub>3</sub> Nanoribbon-Based Field-Effect Transistors. Advanced Functional Materials, 2017, 27, 1605647.	14.9	52
48	Current rectification in a single molecule diode: the role of electrode coupling. Nanotechnology, 2015, 26, 291001.	2.6	51
49	Gate tunable photovoltaic effect in MoS <sub>2</sub> vertical p-n homostructures. Journal of Materials Chemistry C, 2017, 5, 854-861.	5.5	50
50	Characterization of single-molecule pentanedithiol junctions by inelastic electron tunneling spectroscopy and first-principles calculations. Physical Review B, 2010, 81, .	3.2	47
51	Use of Capacitance to Measure Surface Forces. 1. Measuring Distance of Separation with Enhanced Spatial and Time Resolution. Langmuir, 1996, 12, 3289-3294.	3.5	44
52	Enhanced Visibility of MoS <sub>2</sub> , MoSe <sub>2</sub> , WSe <sub>2</sub> and Black-Phosphorus: Making Optical Identification of 2D Semiconductors Easier. Electronics (Switzerland), 2015, 4, 847-856.	3.1	44
53	Structural versus Electrical Functionalization of Oligo(phenylene ethynylene) Diamine Molecular Junctions. Journal of Physical Chemistry C, 2014, 118, 21655-21662.	3.1	42
54	Highly responsive UV-photodetectors based on single electrospun TiO <sub>2</sub> nanofibres. Journal of Materials Chemistry C, 2016, 4, 10707-10714.	5.5	41

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55	The Role of Oligomeric Gold-Thiolate Units in Single-Molecule Junctions of Thiol-Anchored Molecules. <i>Journal of Physical Chemistry C</i> , 2018, 122, 3211-3218.	3.1	41
56	Quantum Thermopower of Metallic Atomic-Size Contacts at Room Temperature. <i>Nano Letters</i> , 2015, 15, 1006-1011.	9.1	39
57	Unusual Length Dependence of the Conductance in Cumulene Molecular Wires. <i>Angewandte Chemie - International Edition</i> , 2019, 58, 8378-8382.	13.8	39
58	STM study of the atomic contact between metallic electrodes. <i>Physica B: Condensed Matter</i> , 1996, 218, 238-241.	2.7	38
59	Detecting Mechanochemical Atropisomerization within an STM Break Junction. <i>Journal of the American Chemical Society</i> , 2018, 140, 710-718.	13.7	38
60	Linear convective patterns in cylindrical geometry for unipolar injection. <i>Physics of Fluids A, Fluid Dynamics</i> , 1990, 2, 37-44.	1.6	36
61	Plastic Deformation in Nanometer Scale Contacts. <i>Langmuir</i> , 1996, 12, 4505-4509.	3.5	35
62	Nanocontacts: Probing Electronic Structure under Extreme Uniaxial Strains. <i>Physical Review Letters</i> , 1997, 79, 4198-4201.	7.8	35
63	Molecular Structure (Thermo)electric Property Relationships in Single-Molecule Junctions and Comparisons with Single- and Multiple-Parameter Models. <i>Journal of the American Chemical Society</i> , 2021, 143, 3817-3829.	13.7	35
64	Transition from the tunneling regime to point contact and proximity-induced Josephson effect in lead-normal-metal nanojunctions. <i>Physical Review B</i> , 1992, 46, 5814-5817.	3.2	34
65	Tetrathiafulvalene-based molecular nanowires. <i>Chemical Communications</i> , 2007, , 4854.	4.1	33
66	Ultralong Natural Graphene Nanoribbons and Their Electrical Conductivity. <i>Small</i> , 2009, 5, 924-927.	10.0	33
67	Thermoelectric Properties of 2,7-Dipyridylfluorene Derivatives in Single-Molecule Junctions. <i>Journal of Physical Chemistry C</i> , 2018, 122, 27198-27204.	3.1	33
68	Anisotropy of the upper critical field near $T_c$ and the properties of URu <sub>2</sub> Si <sub>2</sub> and UBe <sub>13</sub> in the normal state. <i>Journal of Low Temperature Physics</i> , 1991, 85, 359-376.	1.4	32
69	Nanosized superconducting constrictions. <i>Physical Review B</i> , 1998, 58, 11173-11176.	3.2	32
70	Single-molecule conductance of dibenzopentalenes: antiaromaticity and quantum interference. <i>Chemical Communications</i> , 2021, 57, 745-748.	4.1	32
71	Force-gradient-induced mechanical dissipation of quartz tuning fork force sensors used in atomic force microscopy. <i>Ultramicroscopy</i> , 2011, 111, 186-190.	1.9	30
72	Carbon fibre tips for scanning probe microscopy based on quartz tuning fork force sensors. <i>Nanotechnology</i> , 2010, 21, 145702.	2.6	29

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73	Single-molecule conductance of a chemically modified, $\pi$ -extended tetrathiafulvalene and its charge-transfer complex with $F_{4-TCNQ}$ . Beilstein Journal of Organic Chemistry, 2015, 11, 1068-1078.	2.2	29
74	Can One Define the Conductance of Amino Acids?. Biomolecules, 2019, 9, 580.	4.0	29
75	Microheater Actuators as a Versatile Platform for Strain Engineering in 2D Materials. Nano Letters, 2020, 20, 5339-5345.	9.1	29
76	Plastic deformation in atomic size contacts. Thin Solid Films, 1994, 253, 199-203.	1.8	28
77	Thermoelectric Enhancement in Single Organic Radical Molecules. Nano Letters, 2022, 22, 948-953.	9.1	28
78	Spatially resolved electronic inhomogeneities of graphene due to subsurface charges. Carbon, 2012, 50, 932-938.	10.3	27
79	Unipolar injection induced instabilities in plane parallel flows. IEEE Transactions on Industry Applications, 1992, 28, 513-519.	4.9	26
80	Single-channel transmission in gold one-atom contacts and chains. Physical Review B, 2003, 67, .	3.2	26
81	Stability of Single- and Few-Molecule Junctions of Conjugated Diamines. Journal of the American Chemical Society, 2013, 135, 5420-5426.	13.7	26
82	Vertical inertial piezoelectric translation device for a scanning tunneling microscope. Review of Scientific Instruments, 1992, 63, 263-264.	1.3	25
83	A low temperature scanning tunneling microscope for electronic and force spectroscopy. Review of Scientific Instruments, 2007, 78, 113705.	1.3	25
84	Cross-conjugation increases the conductance of <i>meta</i> -connected fluorenones. Nanoscale, 2019, 11, 13720-13724.	5.6	25
85	Strong modulation of optical properties in rippled 2D GaSe <i>via</i> strain engineering. Nanotechnology, 2019, 30, 24LT01.	2.6	21
86	On the transition from tunneling regime to point-contact: graphite. Ultramicroscopy, 1992, 42-44, 177-183.	1.9	20
87	Single-Molecule Conductance of 1,4-Azaborine Derivatives as Models of BN-doped PAHs. Angewandte Chemie - International Edition, 2021, 60, 6609-6616.	13.8	20
88	Distribution of conduction channels in nanoscale contacts: Evolution towards the diffusive limit. Europhysics Letters, 2005, 70, 663-669.	2.0	19
89	A Peierls Transition in Long Polymethine Molecular Wires: Evolution of Molecular Geometry and Single-Molecule Conductance. Journal of the American Chemical Society, 2021, 143, 20472-20481.	13.7	19
90	Fast Yet Quantum-Efficient Few-Layer Vertical $MoS_2$ Photodetectors. Advanced Electronic Materials, 2019, 5, 1900141.	5.1	16

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91	Experimental evidence of nonactivated creep in $\text{Pb}(\text{Zr}_{1-x}\text{Ti}_x)\text{O}_3$ ceramics at low temperatures. <i>Physical Review B</i> , 1997, 56, R2900-R2903.	3.2	14
92	Highly reproducible low temperature scanning tunneling microscopy and spectroscopy with in situ prepared tips. <i>Ultramicroscopy</i> , 2012, 122, 1-5.	1.9	13
93	Connectivity dependent thermopower of bridged biphenyl molecules in single-molecule junctions. <i>Nanoscale</i> , 2020, 12, 14682-14688.	5.6	13
94	2,7- and 4,9-Dialkynyldihydropyrene Molecular Switches: Syntheses, Properties, and Charge Transport in Single-Molecule Junctions. <i>Journal of the American Chemical Society</i> , 2022, 144, 12698-12714.	13.7	12
95	Josephson effect in nanoscopic structures. <i>Physical Review B</i> , 1994, 50, 12788-12792.	3.2	11
96	A Detailed Experimental and Theoretical Study into the Properties of $\text{C}_{60}$ Dumbbell Junctions. <i>Small</i> , 2013, 9, 3812-3822.	10.0	11
97	Effect of Charge-Assisted Hydrogen Bonds on Single-Molecule Electron Transport. <i>Journal of Physical Chemistry C</i> , 2019, 123, 29386-29393.	3.1	11
98	Unusual Length Dependence of the Conductance in Cumulene Molecular Wires. <i>Angewandte Chemie</i> , 2019, 131, 8466-8470.	2.0	11
99	Exploring seebeck-coefficient fluctuations in endohedral-fullerene, single-molecule junctions. <i>Nanoscale Horizons</i> , 2022, 7, 616-625.	8.0	11
100	Does a Cyclopropane Ring Enhance the Electronic Communication in Dumbbell-Type $\text{C}_{60}$ Dimers?. <i>Journal of Organic Chemistry</i> , 2014, 79, 4871-4877.	3.2	10
101	Tunneling measurements of the energy gap in $\text{Tl}$ - and $\text{Bi}$ -based oxide superconductors. <i>Journal of Applied Physics</i> , 1990, 67, 5026-5028.	2.5	9
102	Conductance regimes in superconducting junctions of atomic size. <i>Physical Review B</i> , 1994, 50, 374-379.	3.2	9
103	Carbon tips as electrodes for single-molecule junctions. <i>Applied Physics Letters</i> , 2011, 99, 123105.	3.3	8
104	Periodic spatial variation of the electron-phonon interaction in epitaxial graphene on $\text{Ru}(0001)$ . <i>Applied Physics Letters</i> , 2013, 102, .	3.3	8
105	Long-lived charged states of single porphyrin-tape junctions under ambient conditions. <i>Nanoscale Horizons</i> , 2021, 6, 49-58.	8.0	8
106	Calibration of Piezoelectric Positioning Actuators Using a Reference Voltage-to-Displacement Transducer Based on Quartz Tuning Forks. <i>Microscopy and Microanalysis</i> , 2012, 18, 353-358.	0.4	7
107	Interference Controls Conductance in Phthalocyanine Molecular Junctions. <i>Journal of Physical Chemistry C</i> , 2021, 125, 15035-15043.	3.1	7
108	Superconducting phonon structure in the transition from tunneling to contact regime. <i>Physical Review B</i> , 1994, 50, 7177-7179.	3.2	6

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109	Tunneling and point-contact spectroscopy on NbSe <sub>2</sub> . Physica C: Superconductivity and Its Applications, 2000, 332, 450-455.	1.2	6
110	Lithography-free electrical transport measurements on 2D materials by direct microprobing. Journal of Materials Chemistry C, 2017, 5, 11252-11258.	5.5	6
111	Three-state molecular potentiometer based on a non-symmetrically positioned in-backbone linker. Journal of Materials Chemistry C, 2021, 9, 16282-16289.	5.5	6
112	Reversed metal replicas of freeze-dried proteins to be visualized with the scanning tunneling microscope. Ultramicroscopy, 1995, 60, 41-48.	1.9	5
113	Photodiodes based in La <sub>0.7</sub> Sr <sub>0.3</sub> MnO <sub>3</sub> /single layer MoS <sub>2</sub> hybrid vertical heterostructures. 2D Materials, 2017, 4, 034002.	4.4	5
114	Quantum interference dependence on molecular configurations for cross-conjugated systems in single-molecule junctions. Molecular Systems Design and Engineering, 2022, 7, 1287-1293.	3.4	5
115	Oscillatory and steady convection in a dielectric viscoelastic layer subjected to a temperature gradient in the presence of an electric field. Journal of Non-Newtonian Fluid Mechanics, 1986, 21, 1-12.	2.4	4
116	Carbon-fiber tips for scanning probe microscopes and molecular electronics experiments. Nanoscale Research Letters, 2012, 7, 254.	5.7	4
117	Hydrodynamic instabilities in annular flows subjected to orthogonal unipolar injection. , 0, , .		2
118	Note: Long-range scanning tunneling microscope for the study of nanostructures on insulating substrates. Review of Scientific Instruments, 2014, 85, 026105.	1.3	2
119	Single-Molecule Conductance of 1,4-Azaborine Derivatives as Models of BN-doped PAHs. Angewandte Chemie, 2021, 133, 6683-6690.	2.0	2
120	Electrohydrodynamically induced instabilities in parallel flows. , 0, , .		0
121	Anisotropy of upper critical field near TC and magnetic gap of superconducting URu <sub>2</sub> Si <sub>2</sub> single crystal.. Physica C: Superconductivity and Its Applications, 1991, 185-189, 2623-2624.	1.2	0
122	Electronic Structure Under Extreme Uniaxial Strains: Conductance in Metallic Nanocontacts.. Materials Research Society Symposia Proceedings, 1997, 499, 173.	0.1	0
123	Mechanical Properties and Electric Field Screening of Atomically Thin MoS <sub>2</sub> Crystals. Lecture Notes in Nanoscale Science and Technology, 2014, , 129-153.	0.8	0
124	Mechanical Properties of Metallic Nanocontacts. Nanoscience and Technology, 2015, , 333-361.	1.5	0
125	Atomic-Size Conductors. , 1999, , 290-301.		0