

# Tay-Rong Chang

## List of Publications by Year in descending order

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131  
papers

14,579  
citations

30070

54  
h-index

18130

120  
g-index

133  
all docs

133  
docs citations

133  
times ranked

12552  
citing authors

#	ARTICLE	IF	CITATIONS
1	Observation of a three-dimensional topological Dirac semimetal phase in high-mobility Cd <sub>3</sub> As <sub>2</sub> . Nature Communications, 2014, 5, 3786.	12.8	1,166
2	Direct observation of the transition from indirect to direct bandgap in atomically thin epitaxial MoSe <sub>2</sub> . Nature Nanotechnology, 2014, 9, 111-115.	31.5	1,129
3	Discovery of a Weyl fermion state with Fermi arcs in niobium arsenide. Nature Physics, 2015, 11, 748-754.	16.7	817
4	Topological nodal-line fermions in spin-orbit metal PbTaSe <sub>2</sub> . Nature Communications, 2016, 7, 10556.	12.8	688
5	Observation of Fermi arc surface states in a topological metal. Science, 2015, 347, 294-298.	12.6	603
6	Signatures of the Adler-Bell-Jackiw chiral anomaly in a Weyl fermion semimetal. Nature Communications, 2016, 7, 10735.	12.8	603
7	Gated silicene as a tunable source of nearly 100% spin-polarized electrons. Nature Communications, 2013, 4, 1500.	12.8	408
8	Discovery of topological Weyl fermion lines and drumhead surface states in a room temperature magnet. Science, 2019, 365, 1278-1281.	12.6	374
9	Observation of the nonlinear Hall effect under time-reversal-symmetric conditions. Nature, 2019, 565, 337-342.	27.8	372
10	Hedgehog spin texture and Berry's phase tuning in a magnetic topological insulator. Nature Physics, 2012, 8, 616-622.	16.7	353
11	Experimental discovery of a topological Weyl semimetal state in TaP. Science Advances, 2015, 1, e1501092.	10.3	337
12	Surface electronic structure of the topological Kondo-insulator candidate correlated electron system SmB <sub>6</sub> . Nature Communications, 2013, 4, 2991.	12.8	308
13	New type of Weyl semimetal with quadratic double Weyl fermions. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 1180-1185.	7.1	291
14	Unconventional Chiral Fermions and Large Topological Fermi Arcs in RhSi. Physical Review Letters, 2017, 119, 206401.	7.8	270
15	Drumhead surface states and topological nodal-line fermions in TlTaSe <sub>2</sub> . Physical Review B, 2016, 93, .	12.8	268
16	Giant and anisotropic many-body spin-orbit tunability in a strongly correlated Kagome magnet. Nature, 2018, 562, 91-95.	27.8	255
17	Quantum-limit Chern topological magnetism in TbMn <sub>6</sub> Sn <sub>6</sub> . Nature, 2020, 583, 533-536.	27.8	253
18	Topological quantum properties of chiral crystals. Nature Materials, 2018, 17, 978-985.	27.5	252

#	ARTICLE	IF	CITATIONS
19	Prediction of an arc-tunable Weyl Fermion metallic state in $\text{MoxW1}\hat{\sim}\text{xTe2}$ . Nature Communications, 2016, 7, 10639.	12.8	249
20	Electrically switchable Berry curvature dipole in the monolayer topological insulator $\text{WTe2}$ . Nature Physics, 2018, 14, 900-906.	16.7	249
21	Topological chiral crystals with helicoid-arc quantum states. Nature, 2019, 567, 500-505.	27.8	249
22	Large Area and High Quality 2D Transition Metal Telluride. Advanced Materials, 2017, 29, 1603471.	21.0	181
23	Room-temperature intrinsic ferromagnetism in epitaxial $\text{CrTe2}$ ultrathin films. Nature Communications, 2021, 12, 2492.	12.8	179
24	Discovery of Lorentz-violating type II Weyl fermions in $\text{LaAlGe}$ . Science Advances, 2017, 3, e1603266.	10.8	176
25	Topological surface states and Dirac point tuning in ternary topological insulators. Physical Review B, 2012, 85, .	3.2	171
26	Discovery of a new type of topological Weyl fermion semimetal state in $\text{MoxW1}\hat{\sim}\text{xTe2}$ . Nature Communications, 2016, 7, 13643.	12.8	163
27	Type-II Symmetry-Protected Topological Dirac Semimetals. Physical Review Letters, 2017, 119, 026404.	7.8	145
28	Layer Hall effect in a 2D topological axion antiferromagnet. Nature, 2021, 595, 521-525.	27.8	136
29	Criteria for Directly Detecting Topological Fermi Arcs in Weyl Semimetals. Physical Review Letters, 2016, 116, 066802.	7.8	134
30	Magnetic and noncentrosymmetric Weyl fermion semimetals in the $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi mathvariant="italic"} \rangle R \langle \text{mml:mi} \rangle \langle \text{mml:mi} \rangle$		

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37	Observation of quantum-tunnelling-modulated spin texture in ultrathin topological insulator Bi <sub>2</sub> Se <sub>3</sub> films. Nature Communications, 2014, 5, 3841.	12.8	112
38	Atomic-Scale Visualization of Quantum Interference on a Weyl Semimetal Surface by Scanning Tunneling Microscopy. ACS Nano, 2016, 10, 1378-1385.	14.6	112
39	Controlled Synthesis of Organic/Inorganic van der Waals Solid for Tunable Light-Matter Interactions. Advanced Materials, 2015, 27, 7800-7808.	21.0	109
40	Spin Polarization and Texture of the Fermi Arcs in the Weyl Fermion Semimetal TaAs. Physical Review Letters, 2016, 116, 096801.	7.8	102
41	Evidence of indirect gap in monolayer WSe <sub>2</sub> . Nature Communications, 2017, 8, 929.	12.8	98
42	Signatures of a time-reversal symmetric Weyl semimetal with only four Weyl points. Nature Communications, 2017, 8, 942.	12.8	98
43	Room-temperature nonlinear Hall effect and wireless radiofrequency rectification in Weyl semimetal TaTe <sub>4</sub> . Nature Nanotechnology, 2021, 16, 421-425.	31.5	91
44	Realization of a Type-II Nodal-Line Semimetal in Mg <sub>3</sub> Bi <sub>2</sub> . Advanced Science, 2019, 6, 1800897.	11.2	84
45	Spontaneous gyrotropic electronic order in a transition-metal dichalcogenide. Nature, 2020, 578, 545-549.	27.8	80
46	Topological Dirac surface states and superconducting pairing correlations in $\text{PbTaSe}_2$ . Physical Review B, 2016, 93, .	12.8	79
47	Single-layer dual germanene phases on Ag(111). Physical Review Materials, 2018, 2, .	2.4	72
48	Imaging the evolution of metallic states in a correlated iridate. Nature Materials, 2013, 12, 707-713.	27.5	71
49	Hallmarks of Hund's coupling in the Mott insulator Ca <sub>2</sub> RuO <sub>4</sub> . Nature Communications, 2017, 8, 15176.	12.8	66
50	Magnetotransport properties of the single-crystalline nodal-line semimetal candidates $\text{Ca}_2\text{RuO}_4$ and $\text{Ca}_2\text{CoO}_4$ . Physical Review B, 2017, 95, .	12.8	66
51	A New Magnetic Topological Quantum Material Candidate by Design. ACS Central Science, 2019, 5, 900-910.	11.3	63
52	Topology on a new facet of bismuth. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 13255-13259.	7.1	61
53	Three-dimensional Dirac cone carrier dynamics in $\text{Na}_3\text{Cd}_3\text{S}_7$ . Physical Review B, 2016, 94, .	12.8	57
54	Atomic-Scale Visualization of Quasiparticle Interference on a Type-II Weyl Semimetal Surface. Physical Review Letters, 2016, 117, 266804.	7.8	56

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55	Signatures of Fermi Arcs in the Quasiparticle Interferences of the Weyl Semimetals TaAs and NbP. <i>Physical Review Letters</i> , 2016, 116, 066601.	7.8	54
56	Polymorphic Layered MoTe <sub>2</sub> from Semiconductor, Topological Insulator, to Weyl Semimetal. <i>Chemistry of Materials</i> , 2017, 29, 699-707.	6.7	52
57	Quasiparticle interference and nonsymmorphic effect on a floating band surface state of ZrSiSe. <i>Nature Communications</i> , 2018, 9, 4153.	12.8	48
58	Crystal growth and quantum oscillations in the topological chiral semimetal CoSi. <i>Physical Review B</i> , 2019, 100, .	3.2	48
59	Non-Kondo-like Electronic Structure in the Correlated Rare-Earth Hexaboride $YbB_6$ . <i>Physical Review Letters</i> , 2015, 114, 016403.	7.8	46
60	Observation of the spin-polarized surface state in a noncentrosymmetric superconductor BiPd. <i>Nature Communications</i> , 2016, 7, 13315.	12.8	42
61	Purely rotational symmetry-protected topological crystalline insulator $\hat{I}_{\pm}Bi_4Br_4$ . <i>2D Materials</i> , 2019, 6, 031004.	4.4	41
62	Resonant Tunneling through Discrete Quantum States in Stacked Atomic-Layered MoS <sub>2</sub> . <i>Nano Letters</i> , 2014, 14, 2381-2386.	9.1	40
63	Thickness dependence of spin polarization and electronic structure of ultra-thin films of MoS <sub>2</sub> and related transition-metal dichalcogenides. <i>Scientific Reports</i> , 2014, 4, 6270.	3.3	36
64	Fermion-boson many-body interplay in a frustrated kagome paramagnet. <i>Nature Communications</i> , 2020, 11, 4003.	12.8	35
65	Unconventional transformation of spin Dirac phase across a topological quantum phase transition. <i>Nature Communications</i> , 2015, 6, 6870.	12.8	34
66	Room-temperature Nanoseconds Spin Relaxation in WTe <sub>2</sub> and MoTe <sub>2</sub> Thin Films. <i>Advanced Science</i> , 2018, 5, 1700912.	11.2	34
67	Topological charge-entropy scaling in kagome Chern magnet TbMn <sub>6</sub> Sn <sub>6</sub> . <i>Nature Communications</i> , 2022, 13, 1197.	12.8	33
68	Inter-Layer Coupling Induced Valence Band Edge Shift in Mono- to Few-Layer MoS <sub>2</sub> . <i>Scientific Reports</i> , 2017, 7, 40559.	3.3	32
69	Evidence of a room-temperature quantum spin Hall edge state in a higher-order topological insulator. <i>Nature Materials</i> , 2022, 21, 1111-1115.	27.5	32
70	Lifshitz transition and Van Hove singularity in a three-dimensional topological Dirac semimetal. <i>Physical Review B</i> , 2015, 92, .	3.2	31
71	Enhanced anomalous Hall effect in the magnetic topological semimetal $Co_3Sn_2S_2$ . <i>Physical Review B</i> , 2020, 101, .	3.2	31
72	Tunable double-Weyl Fermion semimetal state in the SrSi <sub>2</sub> materials class. <i>Scientific Reports</i> , 2018, 8, 10540.	3.3	30

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73	Tuning magnetism and band topology through antisite defects in Sb-doped $\text{MnBi}$ . Physical Review B, 2021, 104, .	3.2	21
74	Fermi surface topology and hot spot distribution in the Kondo lattice system $\text{CeB}_6$ . Physical Review B, 2015, 92, .	3.2	29
75	Topological crystalline insulator states in the $\text{Ca}_2\text{As}$ family. Physical Review B, 2018, 98, .	3.2	28
76	Ultraquantum magnetoresistance in the Kramers-Weyl semimetal candidate $\hat{\Gamma}_2\text{Ag}_2\text{Se}$ . Physical Review B, 2017, 96, .	3.2	27
77	Many-Body Resonance in a Correlated Topological Kagome Antiferromagnet. Physical Review Letters, 2020, 125, 046401.	7.8	24
78	Prediction of threefold fermions in a nearly ideal Dirac semimetal $\text{BaAgAs}$ . Physical Review Materials, 2019, 3, .	2.4	24
79	Nanoscale Interplay of Strain and Doping in a High-Temperature Superconductor. Nano Letters, 2014, 14, 6749-6753.	9.1	23
80	Ab initio study of the $\text{PbTaSe}_2$ -related superconducting topological metals. Physical Review B, 2016, 94, .	3.2	22
81	Field-free platform for Majorana-like zero mode in superconductors with a topological surface state. Physical Review B, 2020, 101, .	3.2	22
82	Experimental observation of two massless Dirac-fermion gases in graphene-topological insulator heterostructure. 2D Materials, 2016, 3, 021009.	4.4	21
83	Quantum oscillations in the noncentrosymmetric superconductor and topological nodal-line semimetal $\text{PbTaSe}_2$ . Physical Review B, 2019, 99, .	3.2	21
84	Saddle-point Van Hove singularity and dual topological state in $\text{Pt}$ . Physical Review B, 2019, 100, .	3.2	21
85	Electronic versus Lattice Match for Metal-Semiconductor Epitaxial Growth: $\text{Pb}$ on $\text{Ge}(111)$ . Physical Review Letters, 2011, 107, 066802.	7.8	20
86	Mirror Protected Dirac Fermions on a Weyl Semimetal $\text{NbP}$ Surface. Physical Review Letters, 2017, 119, 196403.	7.8	20
87	Band Topology of Bismuth Quantum Films. Crystals, 2019, 9, 510.	2.2	20
88	Charge-orbital ordering and ferroelectric polarization in multiferroic $\text{TbMnO}_3$ . Physical Review B, 2015, 91, .	3.2	19
89	Two distinct topological phases in the six-valence compound $\text{YbB}_6$ and its differences from $\text{SmB}_6$ . Physical Review B, 2015, 91, .	3.2	19
90	Tunable spin helical Dirac quasiparticles on the surface of three-dimensional $\text{HgTe}$ . Physical Review B, 2015, 92, .	3.2	19

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91	Quasiparticle Interference on Cubic Perovskite Oxide Surfaces. <i>Physical Review Letters</i> , 2017, 119, 086801.	7.8	19
92	Magnetic and electronic structures of antiferromagnetic topological material candidate $\text{EuMg}_2\text{Bi}_2$ . <i>Journal of Applied Physics</i> , 2021, 129, .	2.5	19
93	Surface versus bulk Dirac state tuning in a three-dimensional topological Dirac semimetal. <i>Physical Review B</i> , 2015, 91, .	3.2	16
94	Large transverse Hall-like signal in topological Dirac semimetal $\text{Cd}_3\text{As}_2$ . <i>Scientific Reports</i> , 2016, 6, 27487.	3.3	16
95	Searching for topological Fermi arcs via quasiparticle interference on a type-II Weyl semimetal $\text{MoTe}_2$ . <i>Npj Quantum Materials</i> , 2018, 3, .	5.2	16
96	Anisotropic superconducting property studies of single crystal $\text{PbTaSe}$ . <i>Journal of Physics Condensed Matter</i> , 2017, 29, 095601.	1.8	16
97	Atomic-scale visualization of surface-assisted orbital order. <i>Science Advances</i> , 2017, 3, eaao0362.	10.3	14
98	Few-layer $1\text{T}\epsilon^2$ $\text{MoTe}$ as gapless semimetal with thickness dependent carrier transport. <i>2D Materials</i> , 2018, 5, 031010.	4.4	14
99	Moiré superlattices and 2D electronic properties of graphite/ $\text{MoS}_2$ heterostructures. <i>Journal of Physics and Chemistry of Solids</i> , 2019, 128, 325-330.	4.0	14
100	Selective Hydrogen Etching Leads to 2D $\text{Bi}(111)$ Bilayers on $\text{Bi}_2\text{Se}_3$ : Large Rashba Splitting in Topological Insulator Heterostructure. <i>Chemistry of Materials</i> , 2017, 29, 8992-9000.	6.7	13
101	Evidence of magnetism-induced topological protection in the axion insulator candidate $\text{EuSn}_2\text{P}$ . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	7.1	12
102	Spin-correlated electronic state on the surface of a spin-orbit Mott system. <i>Physical Review B</i> , 2014, 90, .	3.2	11
103	Superconducting $\text{SrSnP}$ with Strong $\text{Sn}\epsilon\text{P}$ Antibonding Interaction: Is the Sn Atom Single or Mixed Valent?. <i>Chemistry of Materials</i> , 2018, 30, 6005-6013.	6.7	11
104	Observation of symmetry-protected Dirac states in nonsymmorphic $\hat{I}_2$ -antimonene. <i>Physical Review B</i> , 2021, 104, .	3.2	11
105	Multiple topological electronic phases in superconductor $\text{MoC}$ . <i>Physical Review Materials</i> , 2018, 2, .	2.4	10
106	Dispersive resonance bands within the space-charge layer of a metal-semiconductor junction. <i>Physical Review B</i> , 2010, 81, .	3.2	9
107	Unconventional topological phase transition in non-symmorphic material $\text{KHgX}$ ( $X = \text{As, Sb, Bi}$ ). <i>Npj Computational Materials</i> , 2019, 5, .	8.7	9
108	Band gap engineered ternary semiconductor $\text{Pb}_x\text{Cd}_{1-x}\text{S}$ : Nanoparticle-sensitized solar cells with an efficiency of 8.5% under 1% sun. A combined theoretical and experimental study. <i>Progress in Photovoltaics: Research and Applications</i> , 2020, 28, 328-341.	8.1	9

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109	Fermiology and type-I superconductivity in the chiral superconductor $\text{Nb}_x\text{Ce}_{1-x}\text{Ni}$ with Kramers-Weyl fermions. <i>Physical Review B</i> , 2020, 102, .	5.2	9
110	Drastic enhancement of magnetic critical temperature and amorphization in topological magnet $\text{EuSn}_2\text{P}_2$ under pressure. <i>Npj Quantum Materials</i> , 2022, 7, .	5.2	9
111	Magnetically tunable Dirac and Weyl fermions in the Zintl materials family. <i>Physical Review Materials</i> , 2022, 6, .	2.4	9
112	Bond-breaking induced Lifshitz transition in robust Dirac semimetal $\text{VAI}_3$ . <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 15517-15523.	7.1	8
113	A Novel Magnetic Material by Design: Observation of $\text{Yb}^{3+}$ with Spin-1/2 in $\text{Yb}_x\text{Pt}_{5-x}\text{P}$ . <i>ACS Central Science</i> , 2020, 6, 2023-2030.	11.3	8
114	Topological Proximity-Induced Dirac Fermion in Two-Dimensional Antimonene. <i>ACS Nano</i> , 2021, 15, 15085-15095.	14.6	8
115	Prediction of nontrivial band topology and superconductivity in $M_x\text{g}_2\text{Pb}$ . <i>Physical Review Materials</i> , 2017, 1, 010401.	2.4	8
116	Termination-dependent topological surface states in nodal-loop semimetal $\text{HfP}_2$ . <i>Physical Review Materials</i> , 2020, 4, .	2.4	8
117	Bilayer oscillation of subband effective masses in $\text{Pb}/\text{Ge}(111)$ thin-film quantum wells. <i>Applied Physics Letters</i> , 2010, 96, 103106.	3.3	7
118	Consonant diminution of lattice and electronic coupling between a film and a substrate: $\text{Pb}$ on $\text{Ge}(100)$ . <i>Physical Review B</i> , 2011, 84, .	3.2	7
119	Rashba effect within the space-charge layer of a semiconductor. <i>New Journal of Physics</i> , 2014, 16, 045003.	2.9	7
120	Significantly enhanced giant Rashba splitting in a thin film of binary alloy. <i>New Journal of Physics</i> , 2015, 17, 083015.	2.9	7
121	Newtype large Rashba splitting in quantum well states induced by spin chirality in metal/topological insulator heterostructures. <i>NPG Asia Materials</i> , 2016, 8, e332-e332.	7.9	6
122	Highly mobile carriers in a candidate of quasi-two-dimensional topological semimetal $\text{AuTe}_2\text{Br}$ . <i>APL Materials</i> , 2019, 7, 101110.	5.1	6
123	Enormous Berry-Curvature-Based Anomalous Hall Effect in Topological Insulator $(\text{Bi,Sb})_2\text{Te}_3$ on Ferrimagnetic Europium Iron Garnet beyond 400 K. <i>ACS Nano</i> , 2022, 16, 2369-2380.	14.6	6
124	Monoclinic 122-Type $\text{BaIr}_2\text{Ge}_2$ with a Channel Framework: A Structural Connection between Clathrate and Layered Compounds. <i>Materials</i> , 2017, 10, 818.	2.9	4
125	Impact of Semiconductor Permittivity Reduction on Electrical Characteristics of Nanoscale MOSFETs. <i>IEEE Transactions on Electron Devices</i> , 2019, 66, 2509-2512.	3.0	4
126	Observation of a van Hove singularity of a surface Fermi arc with prominent coupling to phonons in a Weyl semimetal. <i>Physical Review B</i> , 2022, 105, .	3.2	4



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127	Electronic structures of quasi-one-dimensional ferrimagnetic insulator $\text{Ca}_3\text{Co}_2\text{O}_6$ . Computer Physics Communications, 2011, 182, 93-95.	7.5	3
128	Direct transition resonance in atomically uniform topological $\text{Sb}(111)$ thin films. Physical Review B, 2015, 92, .	3.2	3
129	Band gap tunable quaternary $\text{Pb}_x\text{Cd}_{1-x}\text{S}_{1-y}\text{Se}_y$ quantum dot-sensitized solar cells with an efficiency of 9.24% under 1% Sun. Sustainable Energy and Fuels, 0, , .	4.9	1
130	Recent Advances in Novel Topological Materials. Crystals, 2020, 10, 94.	2.2	0
131	Robust topological state against magnetic impurities observed in the superconductor $\text{PbTaSe}_2$ . Physical Review B, 2021, 104, .	3.2	1