

Ryoma HAYAKAWA

List of Publications by Year in descending order

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83
papers

1,642
citations

279798

23
h-index

361022

35
g-index

83
all docs

83
docs citations

83
times ranked

2079
citing authors

#	ARTICLE	IF	CITATIONS
1	Multi-Valued Logic Circuits Based on Organic Anti-ambipolar Transistors. <i>Nano Letters</i> , 2018, 18, 4355-4359.	9.1	102
2	Recent progress in photoactive organic field-effect transistors. <i>Science and Technology of Advanced Materials</i> , 2014, 15, 024202.	6.1	80
3	Optically and Electrically Driven Organic Thin Film Transistors with Diarylethene Photochromic Channel Layers. <i>ACS Applied Materials & Interfaces</i> , 2013, 5, 3625-3630.	8.0	78
4	Large Magnetoresistance in Single-Radical Molecular Junctions. <i>Nano Letters</i> , 2016, 16, 4960-4967.	9.1	75
5	Negative Differential Resistance Transistor with Organic p-n Heterojunction. <i>Advanced Electronic Materials</i> , 2017, 3, 1700106.	5.1	57
6	Optical switching of carrier transport in polymeric transistors with photochromic spiropyran molecules. <i>Journal of Materials Chemistry C</i> , 2013, 1, 3012.	5.5	56
7	Antiamipolar Transistor: A Newcomer for Future Flexible Electronics. <i>Advanced Functional Materials</i> , 2020, 30, 1903724.	14.9	50
8	Photochromism for optically functionalized organic field-effect transistors: a comprehensive review. <i>Journal of Materials Chemistry C</i> , 2020, 8, 10956-10974.	5.5	48
9	Shot Noise of 1,4-Benzenedithiol Single-Molecule Junctions. <i>Nano Letters</i> , 2016, 16, 1803-1807.	9.1	44
10	Demonstration of diamond field effect transistors by AlN/diamond heterostructure. <i>Physica Status Solidi - Rapid Research Letters</i> , 2011, 5, 125-127.	2.4	39
11	Laser Patterning of Optically Reconfigurable Transistor Channels in a Photochromic Diarylethene Layer. <i>Nano Letters</i> , 2016, 16, 7474-7480.	9.1	38
12	Self-Assembled Molecular Nanowires of 6,13-Bis(methylthio)pentacene: Growth, Electrical Properties, and Applications. <i>Nano Letters</i> , 2008, 8, 3273-3277.	9.1	36
13	Continuous hydrothermal synthesis of nickel oxide nanoplates and their use as nanoinks for p-type channel material in a bottom-gate field-effect transistor. <i>Nanotechnology</i> , 2010, 21, 134009.	2.6	36
14	Unique Device Operations by Combining Optical-Memory Effect and Electrical-Gate Modulation in a Photochromism-Based Dual-Gate Transistor. <i>ACS Applied Materials & Interfaces</i> , 2013, 5, 9726-9731.	8.0	35
15	Device Geometry Engineering for Controlling Organic Antiamipolar Transistor Properties. <i>Journal of Physical Chemistry C</i> , 2018, 122, 6943-6946.	3.1	35
16	Interface Engineering for Controlling Device Properties of Organic Antiamipolar Transistors. <i>ACS Applied Materials & Interfaces</i> , 2018, 10, 2762-2767.	8.0	32
17	Development of AlN/diamond heterojunction field effect transistors. <i>Diamond and Related Materials</i> , 2012, 24, 206-209.	3.9	31
18	Fundamentals of Organic Anti-ambipolar Ternary Inverters. <i>Advanced Electronic Materials</i> , 2020, 6, 1901200.	5.1	31

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19	Early Stage of Growth of a Perylene Diimide Derivative Thin Film Growth on Various Si(001) Substrates. Journal of Physical Chemistry C, 2007, 111, 12747-12751.	3.1	29
20	Perspective: Highly ordered MoS ₂ thin films grown by multi-step chemical vapor deposition process. APL Materials, 2016, 4, .	5.1	28
21	Enhanced Quantum Efficiency in Vertical Mixed-Thickness n-ReS ₂ /p-Si Heterojunction Photodiodes. ACS Photonics, 2019, 6, 2277-2286.	6.6	26
22	Energy-level alignments and photo-induced carrier processes at the heteromolecular interface of quaterylene and N,N'-dioctyl-3,4,9,10-perylenedicarboximide. Physical Chemistry Chemical Physics, 2011, 13, 6280.	2.8	25
23	Optically Controllable Dual-Gate Organic Transistor Produced via Phase Separation between Polymer Semiconductor and Photochromic Spiropyran Molecules. ACS Applied Materials & Interfaces, 2014, 6, 10415-10420.	8.0	23
24	Interface engineering for improving optical switching in a diarylethene-channel transistor. Organic Electronics, 2015, 21, 149-154.	2.6	22
25	Carrier transport properties of MoS ₂ field-effect transistors produced by multi-step chemical vapor deposition method. Journal of Applied Physics, 2017, 121, .	2.5	22
26	Organic heterojunction transistors for mechanically flexible multivalued logic circuits. Applied Physics Express, 2021, 14, 081004.	2.4	22
27	Single-Electron Tunneling through Molecular Quantum Dots in a Metal-Insulator-Semiconductor Structure. Advanced Functional Materials, 2011, 21, 2933-2937.	14.9	21
28	Hard x-ray photoelectron spectroscopy study on band alignment at poly(3,4-ethylenedioxythiophene):poly(styrenesulfonate)/ZnO interface. Applied Physics Letters, 2012, 101, .	3.3	21
29	Analysis of nitrogen plasma generated by a pulsed plasma system near atmospheric pressure. Journal of Applied Physics, 2004, 96, 6094-6096.	2.5	19
30	Interface structure and the chemical states of Pt film on polar-ZnO single crystal. Applied Physics Letters, 2009, 94, 221904.	3.3	18
31	Enhanced Selectivity in Volatile Organic Compound Gas Sensors Based on ReS ₂ -FETs under Light-Assisted and Gate-Bias Tunable Operation. ACS Applied Materials & Interfaces, 2021, 13, 43030-43038.	8.0	18
32	Interface engineering for molecular alignment and device performance of quaterylene thin films. Applied Physics Letters, 2008, 93, .	3.3	17
33	Growth and electrical properties of N,N'-bis(n-pentyl)terrylene-3,4:11,12-tetracarboximide thin films. Applied Physics Letters, 2008, 92, 163301.	3.3	17
34	Enhanced Electrical Conductivity in Poly(3-hexylthiophene)/Fluorinated Tetracyanoquinodimethane Nanowires Grown with a Porous Alumina Template. Langmuir, 2013, 29, 7266-7270.	3.5	17
35	Electrically Reconfigurable Organic Logic Gates: A Promising Perspective on a Dual-Gate Antiamipolar Transistor. Advanced Materials, 2022, 34, e2109491.	21.0	17
36	Reaction of Si with excited nitrogen species in pure nitrogen plasma near atmospheric pressure. Thin Solid Films, 2006, 506-507, 423-426.	1.8	16

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37	Growth of quaterylene thin films on a silicon dioxide surface using vacuum deposition. <i>Organic Electronics</i> , 2007, 8, 631-634.	2.6	16
38	Structural characterization and transistor properties of thickness-controllable MoS ₂ thin films. <i>Journal of Materials Science</i> , 2019, 54, 7758-7767.	3.7	15
39	ReS ₂ /h-BN/Graphene Heterostructure Based Multifunctional Devices: Tunneling Diodes, FETs, Logic Gates, and Memory. <i>Advanced Electronic Materials</i> , 2021, 7, .	5.1	15
40	Detailed structural analysis and dielectric properties of silicon nitride film fabricated using pure nitrogen plasma generated near atmospheric pressure. <i>Journal of Applied Physics</i> , 2006, 100, 073710.	2.5	14
41	Strain-effect for controlled growth mode and well-ordered structure of quaterylene thin films. <i>Journal of Chemical Physics</i> , 2010, 133, 034706.	3.0	14
42	Ambipolar carrier transport in an optically controllable diarylethene thin film transistor. <i>Organic Electronics</i> , 2019, 64, 205-208.	2.6	14
43	Photoisomerization-Induced Manipulation of Single-Electron Tunneling for Novel Si-Based Optical Memory. <i>ACS Applied Materials & Interfaces</i> , 2013, 5, 11371-11376.	8.0	13
44	Organic-semiconductor nanoarchitectonics for multi-valued logic circuits with ideal transfer characteristics. <i>Journal of Materials Chemistry C</i> , 2021, 9, 15415-15421.	5.5	13
45	High-performance multivalued logic circuits based on optically tunable antiambipolar transistors. <i>Journal of Materials Chemistry C</i> , 2022, 10, 5559-5566.	5.5	13
46	Growth and structural characterization of molecular superlattice of quaterylene and N,N'-dioctyl-3,4,9,10-perylenedicarboximide. <i>Organic Electronics</i> , 2009, 10, 1032-1036.	2.6	11
47	Stress Release Drives Growth Transition of Quaterylene Thin Films on SiO ₂ Surfaces. <i>Journal of Physical Chemistry C</i> , 2009, 113, 2197-2199.	3.1	11
48	Ambipolar carrier transport in hetero-layered organic transistors consisting of quaterylene and N,N'-dioctyl-3,4,9,10-perylenedicarboximide. <i>Organic Electronics</i> , 2011, 12, 1336-1340.	2.6	11
49	Evolution of Quaterylene Thin Films on a Silicon Dioxide Surface Using an Ultraslow Deposition Technique. <i>Journal of Physical Chemistry C</i> , 2007, 111, 18703-18707.	3.1	10
50	Analysis of carrier transport in quaterylene thin film transistors formed by ultraslow vacuum deposition. <i>Journal of Applied Physics</i> , 2008, 104, 024506.	2.5	10
51	Electrolyte-gated-organic field effect transistors functionalized by lipid monolayers with tunable pH sensitivity for sensor applications. <i>Applied Physics Express</i> , 2020, 13, 011005.	2.4	10
52	Structural analysis and transistor properties of hetero-molecular bilayers. <i>Thin Solid Films</i> , 2009, 518, 441-443.	1.8	9
53	Structural analysis and electrical properties of pure Ge ₃ N ₄ dielectric layers formed by an atmospheric-pressure nitrogen plasma. <i>Journal of Applied Physics</i> , 2011, 110, 064103.	2.5	9
54	Stable operation of water-gated organic field-effect transistor depending on channel flatness, electrode metals and surface treatment. <i>Japanese Journal of Applied Physics</i> , 2019, 58, SDDH02.	1.5	9

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55	Multilevel Operation of Resonant Tunneling with Binary Molecules in a Metal-Insulator-Semiconductor Configuration. <i>Journal of Physical Chemistry C</i> , 2014, 118, 6467-6472.	3.1	8
56	Nanochannel effect in polymer nanowire transistor with highly aligned polymer chains. <i>Applied Physics Letters</i> , 2015, 106, .	3.3	8
57	P-type polymer-based Ag_2S atomic switch for π - ω operation. <i>Japanese Journal of Applied Physics</i> , 2017, 56, 06GF03.	1.5	8
58	Formation of Silicon Oxynitride Films with Low Leakage Current Using N_2/O_2 Plasma near Atmospheric Pressure. <i>Japanese Journal of Applied Physics</i> , 2004, 43, 7853-7856.	1.5	7
59	Integration of molecular functions into Si device for nanoscale molecular devices. <i>Thin Solid Films</i> , 2014, 554, 2-7.	1.8	7
60	Soluble 2,6-Bis(4-pentylphenylethynyl)anthracene as a High Hole Mobility Semiconductor for Organic Field-effect Transistors. <i>Chemistry Letters</i> , 2016, 45, 1403-1405.	1.3	7
61	Photocontrollable ambipolar transistors with π -conjugated diarylethene photochromic channels. <i>Japanese Journal of Applied Physics</i> , 2019, 58, SDDH03.	1.5	7
62	Light-Assisted and Gate-Tunable Oxygen Gas Sensor Based on Rhenium Disulfide Field-Effect Transistors. <i>Physica Status Solidi - Rapid Research Letters</i> , 2020, 14, 2000330.	2.4	7
63	Effect of Additional Oxygen on Formation of Silicon Oxynitride Using Nitrogen Plasma Generated near Atmospheric Pressure. <i>Japanese Journal of Applied Physics</i> , 2006, 45, 9025-9028.	1.5	6
64	The comparison of the growth models of silicon nitride ultrathin films fabricated using atmospheric pressure plasma and radio frequency plasma. <i>Journal of Applied Physics</i> , 2007, 101, 023513.	2.5	6
65	Schottky barrier height behavior of Pt-Ru alloy contacts on single-crystal n-ZnO. <i>Journal of Applied Physics</i> , 2010, 107, .	2.5	6
66	Layer-by-layer growth of precisely controlled hetero-molecular multi-layers and superlattice structures. <i>Thin Solid Films</i> , 2014, 554, 74-77.	1.8	6
67	$\text{Mn}_{0.5}\text{Ge}_3\text{C}_{0.6}\%$ / $\text{Ge}_{1\%1}$ Schottky contacts tuned by an n-type ultra-shallow doping layer. <i>Journal Physics D: Applied Physics</i> , 2016, 49, 355101.	2.8	6
68	Polymer chain alignment and transistor properties of nanochannel-templated poly(3-hexylthiophene) nanowires. <i>Journal of Applied Physics</i> , 2016, 120, 055501.	2.5	6
69	Vertical resonant tunneling transistors with molecular quantum dots for large-scale integration. <i>Nanoscale</i> , 2017, 9, 11297-11302.	5.6	6
70	Variable temperature characterization of N,N'-Bis(n-pentyl)terrylene-3,4:11,12-tetracarboxylic diimide thin film transistor. <i>Organic Electronics</i> , 2009, 10, 1187-1190.	2.6	5
71	Impact of surface modification by addition of self-assembled monolayer for carrier transport of quaterylene thin films. <i>Thin Solid Films</i> , 2009, 518, 437-440.	1.8	5
72	Photoelectron spectroscopic study on monolayer pentacene thin-film/polar ZnO single-crystal hybrid interface. <i>Applied Physics Express</i> , 2017, 10, 025702.	2.4	5

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73	Gate-bias tunable humidity sensors based on rhenium disulfide field-effect transistors. Japanese Journal of Applied Physics, 2021, 60, SBBH01.	1.5	5
74	Improved thermal stability in photochromism-based optically controllable organic thin film transistor. Organic Electronics, 2014, 15, 1891-1895.	2.6	4
75	Crystallographic polarity effect of ZnO on thin film growth of pentacene. Japanese Journal of Applied Physics, 2017, 56, 04CJ03.	1.5	4
76	On-terrace graphoepitaxy for remarkable one-dimensional growth of 2,7-dioctyl[1]benzothieno[3,2-b]benzothiophene (C8-BTBT) nanowires. Organic Electronics, 2019, 74, 33-36.	2.6	4
77	Single-charge transport through hybrid core-shell Au-ZnS quantum dots: a comprehensive analysis from a modified energy structure. Nanoscale, 2021, 13, 4978-4984.	5.6	3
78	Theoretical Insight into Quantum Transport Via Molecular Dots in a Vertical Tunnel Transistor. ACS Applied Electronic Materials, 2021, 3, 973-978.	4.3	3
79	Study of the exciton relaxation and recombination processes of a heteromolecular interface fabricated by a molecular superlattice growth technique. Chemical Physics Letters, 2011, 512, 227-230.	2.6	2
80	Molecular Alignment and Energy-Level Diagram at Heteromolecular Interface of Quaterylene and Terrylene-3,4,11,12-Tetracarboximide. Journal of Nanoscience and Nanotechnology, 2011, 11, 4888-4892.	0.9	1
81	Potential of Directed- and Self-Assembled Molecular Nanowires for Optoelectronic Functional Devices. Japanese Journal of Applied Physics, 2012, 51, 06FA01.	1.5	1
82	Exciton dynamics at the heteromolecular interface between N,N'-dioctyl-3,4,9,10-perylenedicarboximide and quaterylene, studied using time-resolved photoluminescence. AIP Advances, 2014, 4, 067112.	1.3	1
83	Fabrication of Silicon Nitride Film using Pure Nitrogen Plasma Generated near Atmospheric Pressure for III-V Semiconductor Fabrication. Materials Research Society Symposia Proceedings, 2004, 831, 144.	0.1	0