

Michael A Scarpulla

List of Publications by Year in descending order

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156
papers

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186265

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197818

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157
all docs

157
docs citations

157
times ranked

3290
citing authors

#	ARTICLE	IF	CITATIONS
1	Diluted II-VI Oxide Semiconductors with Multiple Band Gaps. Physical Review Letters, 2003, 91, 246403.	7.8	268
2	SnS thin-films by RF sputtering at room temperature. Thin Solid Films, 2011, 519, 7421-7424.	1.8	224
3	Grain Size and Texture of Cu ₂ ZnSnS ₄ Thin Films Synthesized by Cosputtering Binary Sulfides and Annealing: Effects of Processing Conditions and Sodium. Journal of Electronic Materials, 2011, 40, 2214-2221.	2.2	122
4	Effects of sodium on electrical properties in Cu ₂ ZnSnS ₄ single crystal. Applied Physics Letters, 2014, 104, .	3.3	113
5	Enhanced absorption in optically thin solar cells by scattering from embedded dielectric nanoparticles. Optics Express, 2010, 18, A139.	3.4	99
6	Ferromagnetism in Ga _{1-x} MnxP: Evidence for Inter-Mn Exchange Mediated by Localized Holes within a Detached Impurity Band. Physical Review Letters, 2005, 95, 207204.	7.8	92
7	Ferromagnetic Ga _{1-x} MnxAs produced by ion implantation and pulsed-laser melting. Applied Physics Letters, 2003, 82, 1251-1253.	3.3	86
8	Temperature dependent conductivity of polycrystalline Cu ₂ ZnSnS ₄ thin films. Applied Physics Letters, 2012, 100, .	3.3	86
9	Synthesis and optical properties of II-O-VI highly mismatched alloys. Journal of Applied Physics, 2004, 95, 6232-6238.	2.5	82
10	Incident wavelength and polarization dependence of spectral shifts in \hat{I}^2 -Ga ₂ O ₃ UV photoluminescence. Scientific Reports, 2018, 8, 18075.	3.3	62
11	Air shear driven flow of thin perfluoropolyether polymer films. Journal of Chemical Physics, 2003, 118, 3368-3375.	3.0	57
12	Mutual passivation of electrically active and isovalent impurities. Nature Materials, 2002, 1, 185-189.	27.5	55
13	GaN (111) heteroepitaxy on GaN (0001) by N ₂ plasma and NH ₃ molecular beam epitaxy. Journal of Crystal Growth, 2009, 311, 1239-1244.	1.5	54
14	Poly(fumaric-co-sebacic anhydride). Journal of Controlled Release, 1999, 60, 11-22.	9.9	52
15	Synthesis of Ga _{N-x} As _{1-x} thin films by pulsed laser melting and rapid thermal annealing of N ⁺ -implanted GaAs. Journal of Applied Physics, 2003, 94, 1043-1049.	2.5	48
16	Model of native point defect equilibrium in Cu ₂ ZnSnS ₄ and application to one-zone annealing. Journal of Applied Physics, 2013, 114, 124501.	2.5	48
17	Growth and characterization of metalorganic vapor-phase epitaxy-grown \hat{I}^2 -(Al _x) Tj ETQq1 1 0.784314 rgBT /Overlock 10 T channels. Applied Physics Express, 2021, 14, 025501.	2.4	40
18	Interplay between surface preparation and device performance in CZTSSe solar cells: Effects of KCN and NH ₄ OH etching. Solar Energy Materials and Solar Cells, 2015, 136, 78-85.	6.2	38

#	ARTICLE	IF	CITATIONS
19	Delta-doped In^{2+} -Ga ₂ O ₃ thin films and In^{2+} -(Al _{0.26} Ga _{0.74}) ₂ O ₃ / In^{2+} -Ga ₂ O ₃ heterostructures grown by metalorganic vapor-phase epitaxy. Applied Physics Express, 2020, 13, 045501.		38
20	Lubricant Spin-Off from Magnetic Recording Disks. Tribology Letters, 2001, 11, 151-159.	2.6	37
21	Suppression of compensating native defect formation during semiconductor processing via excess carriers. Scientific Reports, 2016, 6, 27954.	3.3	36
22	Laser processing for thin film chalcogenide photovoltaics: a review and prospectus. Journal of Photonics for Energy, 2015, 5, 050999.	1.3	33
23	High p-type doping, mobility, and photocarrier lifetime in arsenic-doped CdTe single crystals. Applied Physics Letters, 2018, 112, .	3.3	33
24	Schottky Barrier Height Engineering in In^{2+} -Ga ₂ O ₃ Using SiO ₂ Interlayer Dielectric. IEEE Journal of the Electron Devices Society, 2020, 8, 286-294.	2.1	32
25	Electronic Structure of Ferromagnetic Semiconductor $\text{Ga}_{1-x}\text{Mn}_x\text{As}$ by Subgap Magneto-optical Spectroscopy. Physical Review Letters, 2009, 103, 137201.	7,8	30
26	Effect of film thickness on the incorporation of Mn interstitials in $\text{Ga}_{1-x}\text{Mn}_x\text{As}$. Applied Physics Letters, 2005, 86, 042102.	3.3	29
27	Electrical transport and ferromagnetism in $\text{Ga}_{1-x}\text{Mn}_x\text{As}$ synthesized by ion implantation and pulsed-laser melting. Journal of Applied Physics, 2008, 103, 073913.	2.5	29
28	Enhanced nitrogen incorporation by pulsed laser annealing of $\text{Ga}_x\text{As}_{1-x}$ formed by N ion implantation. Applied Physics Letters, 2002, 80, 3958-3960.	3.3	28
29	Determination of the infrared complex magnetoconductivity tensor in itinerant ferromagnets from Faraday and Kerr measurements. Physical Review B, 2007, 75, .	3.2	28
30	MnL _{3,2} x-ray absorption and magnetic circular dichroism in ferromagnetic $\text{Ga}_{1-x}\text{Mn}_x\text{P}$. Applied Physics Letters, 2006, 89, 012504.	3.3	27
31	Near-infrared absorption and semimetal-semiconductor transition in 2nm ErAs nanoparticles embedded in GaAs and AlAs. Applied Physics Letters, 2008, 92, .	3.3	27
32	Doping properties of cadmium-rich arsenic-doped CdTe single crystals: Evidence of metastable AX behavior. Applied Physics Letters, 2017, 111, .	3.3	27
33	The anisotropic quasi-static permittivity of single-crystal In^{2+} -Ga ₂ O ₃ measured by terahertz spectroscopy. Applied Physics Letters, 2020, 117, .	3.3	27
34	On the origin of red luminescence from iron-doped In^{2+} -Ga ₂ O ₃ bulk crystals. Applied Physics Letters, 2020, 117, .	3.3	26
35	Diluted ZnMnTe oxide: a multi-band semiconductor for high efficiency solar cells. Physica Status Solidi (B): Basic Research, 2004, 241, 660-663.	1.5	25
36	An Overview of Spread Spectrum Time Domain Reflectometry Responses to Photovoltaic Faults. IEEE Journal of Photovoltaics, 2020, 10, 844-851.	2.5	25

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55	Spread Spectrum Time Domain Reflectometry With Lumped Elements on Asymmetric Transmission Lines. IEEE Sensors Journal, 2021, 21, 921-929.	4.7	16
56	Effect of extended defects on photoluminescence of gallium oxide and aluminum gallium oxide epitaxial films. Scientific Reports, 2022, 12, 3243.	3.3	16
57	Finding Faults in PV Systems: Supervised and Unsupervised Dictionary Learning With SSTDR. IEEE Sensors Journal, 2021, 21, 4855-4865.	4.7	15
58	Growth of embedded ErAs nanorods on (411)A and (411)B GaAs by molecular beam epitaxy. Journal of Crystal Growth, 2010, 312, 2089-2092.	1.5	14
59	Characterization of Sputtered CdTe Thin Films with Electron Backscatter Diffraction and Correlation with Device Performance. Microscopy and Microanalysis, 2015, 21, 927-935.	0.4	14
60	Na-doped Cu ₂ ZnSnS ₄ single crystal grown by traveling-heater method. Journal of Crystal Growth, 2016, 453, 119-123.	1.5	14
61	Defect properties of Na and K in Cu ₂ ZnSnS ₄ from hybrid functional calculation. Journal of Applied Physics, 2018, 124, 165701.	2.5	14
62	Signal Propagation Through Piecewise Transmission Lines for Interpretation of Reflectometry in Photovoltaic Systems. IEEE Journal of Photovoltaics, 2019, 9, 506-512.	2.5	14
63	N-type doping of low-pressure chemical vapor deposition grown \hat{I}^2 -Ga ₂ O ₃ thin films using solid-source germanium. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2021, 39, .	2.1	14
64	Pulsed laser induced ohmic back contact in CdTe solar cells. Applied Physics Letters, 2014, 104, 141604.	3.3	13
65	Spread Spectrum Time Domain Reflectometry for Complex Impedances: Application to PV Arrays. , 2018, , .		13
66	Compensation in (2 \hat{A} 01) homoepitaxial $\langle i \rangle \hat{I}^2 \langle /i \rangle$ -Ga ₂ O ₃ thin films grown by metalorganic vapor-phase epitaxy. Journal of Applied Physics, 2020, 128, .	2.5	13
67	Defect states and their electric field-enhanced electron thermal emission in heavily Zr-doped $\langle b \rangle \langle i \rangle \hat{I}^2 \langle /i \rangle \langle /b \rangle$ -Ga ₂ O ₃ crystals. Applied Physics Letters, 2020, 117, .	3.3	13
68	Nonmagnetic compensation in ferromagnetic Ga $1\hat{a}^{\sim}x$ MnxAs and Ga $1\hat{a}^{\sim}x$ MnxP synthesized by ion implantation and pulsed-laser melting. Journal of Applied Physics, 2008, 103, .	2.5	12
69	Design principles for light trapping in thin silicon films with embedded dielectric nanoparticles. Progress in Photovoltaics: Research and Applications, 2013, 21, 319-325.	8.1	12
70	Exact field solution to guided wave propagation in lossy thin films. Optics Express, 2011, 19, 20159.	3.4	11
71	Effect of metal coating on machinability of high purity germanium using wire electrical discharge machining. Journal of Materials Processing Technology, 2013, 213, 811-817.	6.3	11
72	Cation ratio fluctuations in Cu ₂ ZnSnS ₄ at the 20 \hat{a} %nm length scale investigated by analytical electron microscopy. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 2392-2399.	1.8	11

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73	Measurement of Capacitance Using Spread Spectrum Time Domain Reflectometry (SSTDR) and Dictionary Matching. IEEE Sensors Journal, 2020, 20, 10102-10109.	4.7	11
74	Detection and Localization of Damaged Photovoltaic Cells and Modules Using Spread Spectrum Time Domain Reflectometry. IEEE Journal of Photovoltaics, 2021, 11, 195-201.	2.5	11
75	Oxygen annealing induced changes in defects within $\text{In}^{2-}\text{Ga}^{2-}\text{O}^{3-}$ epitaxial films measured using photoluminescence. Journal Physics D: Applied Physics, 2021, 54, 174004.	2.8	11
76	Effects of pressure on the band structure of highly mismatched $\text{Zn}_{1-y}\text{MnyOxTe}_{1-x}$ alloys. Applied Physics Letters, 2004, 84, 924-926.	3.3	10
77	Compositional tuning of ferromagnetism in $\text{Ga}_{1-x}\text{MnxP}$. Solid State Communications, 2006, 140, 443-446.	1.9	10
78	Pulsed Laser Processing of Electrodeposited CuInSe_2 Photovoltaic Absorber Thin Films. Materials Research Society Symposia Proceedings, 2010, 1268, 1.	0.1	10
79	Synthesis of $\text{Ge}_{1-x}\text{Sn}_x$ Alloy Thin Films Using Ion Implantation and Pulsed Laser Melting (II-PLM). Journal of Electronic Materials, 2012, 41, 837-844.	2.2	10
80	Compensation-dependent in-plane magnetization reversal processes in $\text{Ga}_{1-x}\text{MnxP}$. Physical Review B, 2008, 78, .	3.2	9
81	Suppression of hole-mediated ferromagnetism in $\text{Ga}_{1-x}\text{MnxP}$ by hydrogen. Journal of Applied Physics, 2008, 104, 013908.	2.5	9
82	Continuous wave solid phase laser annealing of single-pot electrodeposited CuInSe_2 thin films: Effects of Cu/In stoichiometry. Journal of Applied Physics, 2013, 114, .	2.5	9
83	Optical Characterization of Gallium Oxide In^{\pm} and In^2 Polymorph Thin-Films Grown on c-Plane Sapphire. Journal of Electronic Materials, 2021, 50, 2990-2998.	2.2	9
84	Pulsed and continuous wave solid phase laser annealing of electrodeposited CuInSe_2 thin films. Proceedings of SPIE, 2012, , .	0.8	8
85	Enhanced light absorption in thin film solar cells with embedded dielectric nanoparticles: Induced texture dominates Mie scattering. Applied Physics Letters, 2013, 102, .	3.3	8
86	Strain tuning of native defect populations: The case of $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$. APL Materials, 2014, 2, 012110.	5.1	8
87	Effects of excess carriers on charged defect concentrations in wide bandgap semiconductors. Journal of Applied Physics, 2018, 123, .	2.5	7
88	Water-Assisted Liftoff of Polycrystalline CdS/CdTe Thin Films Using Heterogeneous Interfacial Engineering. Advanced Materials Interfaces, 2019, 6, 1900300.	3.7	7
89	Detection and Localization of Disconnections in a Large-Scale String of Photovoltaics Using SSTDR. IEEE Journal of Photovoltaics, 2021, 11, 1097-1104.	2.5	7
90	The correlation of performance in CdTe photovoltaics with grain boundaries. , 2012, , .		6

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91	Surface stoichiometry of pulsed ultraviolet laser treated polycrystalline CdTe. Journal of Applied Physics, 2014, 116, 013506.	2.5	6
92	Laser annealing of electrodeposited CuInSe ₂ semiconductor precursors: experiment and modeling. Journal of Materials Chemistry C, 2017, 5, 1336-1345.	5.5	6
93	Photoassisted physical vapor epitaxial growth of semiconductors: a review of light-induced modifications to growth processes. Journal Physics D: Applied Physics, 2018, 51, 023001.	2.8	6
94	Fault Detection In PV Strings Using SSTDR. , 2018, , .		6
95	Arsenic doped Cd-rich CdTe: equilibrium doping limit and long lifetime for high open-circuit voltage solar cells greater than 900 mV. Applied Physics Express, 2019, 12, 081002.	2.4	6
96	Cadmium Selective Etching in CdTe Solar Cells Produces Detrimental Narrow-Gap Te in Grain Boundaries. ACS Applied Energy Materials, 2020, 3, 1749-1758.	5.1	6
97	Pulsed UV laser annealing of polycrystalline CdTe. Proceedings of SPIE, 2013, , .	0.8	5
98	Calculation of point defect concentration in Cu ₂ ZnSnS ₄ : Insights into the high-temperature equilibrium and quenching. Journal of Applied Physics, 2017, 122, .	2.5	5
99	Spread spectrum time-domain reflectometry for detecting and locating capacitive impedances. AIP Conference Proceedings, 2019, , .	0.4	5
100	Observation and Implications of Composition Inhomogeneity Along Grain Boundaries in Thin Film Polycrystalline CdTe Photovoltaic Devices. Advanced Materials Interfaces, 2019, 6, 1900152.	3.7	5
101	REFLECTOMETRY ON ASYMMETRIC TRANSMISSION LINE SYSTEMS. Progress in Electromagnetics Research M, 2020, 89, 121-130.	0.9	5
102	Impact of high-dose gamma-ray irradiation on electrical characteristics of N-polar and Ga-polar GaN p-n diodes. AIP Advances, 2021, 11, .	1.3	5
103	Quantifying the Window of Uncertainty for SSTDR Measurements of a Photovoltaic System. IEEE Sensors Journal, 2021, 21, 9890-9899.	4.7	5
104	Differences in electrical responses and recovery of GaN p+n diodes on sapphire and freestanding GaN subjected to high dose ⁶⁰ Co gamma-ray irradiation. Journal of Applied Physics, 2021, 129, .	2.5	5
105	Electronic and ionic conductivity in $\hat{\Gamma}^2$ -Ga ₂ O ₃ single crystals. Journal of Applied Physics, 2022, 131, .	2.5	5
106	Modeling Cu ₂ ZnSnS ₄ (CZTS) solar cells with kesterite and stannite phase variation. Proceedings of SPIE, 2013, , .	0.8	4
107	Crystallographic study of phases present in CuInSe ₂ absorber layers produced by laser annealing co-electrodeposited precursors. Proceedings of SPIE, 2013, , .	0.8	4
108	Near infrared laser annealing of CdTe and in-situ measurement of the evolution of structural and optical properties. Journal of Applied Physics, 2016, 119, .	2.5	4

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109	Applicability of SSTDR Analysis of Complex Loads. , 2019, , .		4
110	Ga _{1-x} MnxP Synthesized by Ion Implantation and Pulsed-Laser Melting. , 2010, , 157-180.		4
111	Anomaly Detection of Disconnects Using SSTDR and Variational Autoencoders. IEEE Sensors Journal, 2022, 22, 3484-3492.	4.7	4
112	Carrier Concentration Dependencies of Magnetization & Transport in Ga _{1-x} MnxAs _{1-y} Te _y . AIP Conference Proceedings, 2005, , .	0.4	3
113	Mn L _{3,2} X-ray Absorption Spectroscopy And Magnetic Circular Dichroism In Ferromagnetic Ga _{1-x} MnxP. AIP Conference Proceedings, 2007, , .	0.4	3
114	Magnetic anisotropy of ferromagnetic Ga _{1-x} MnxAs formed by Mn ion implantation and pulsed-laser melting. Journal of Applied Physics, 2008, 104, 043902.	2.5	3
115	Ferromagnetic Resonance Study of Ga _{1-x} Mn _x As Fabricated on \hat{A} (311) GaAs Wafers by Mn Ion Implantation and Pulsed-Laser Melting. Journal of Superconductivity and Novel Magnetism, 2010, 23, 87-90.	1.8	3
116	Pulsed laser processing of electrodeposited CuInSe ₂ ; Photovoltaic absorber thin films. , 2011, , .		3
117	Exact field solution to guided wave propagation in lossy thin films. Proceedings of SPIE, 2012, , .	0.8	3
118	Grain growth study of electrochemically deposited CuInSe ₂ by rapid thermal annealing in sulfur atmosphere. Proceedings of SPIE, 2012, , .	0.8	3
119	Reduction of Fermi level pinning and recombination at polycrystalline CdTe surfaces by laser irradiation. Journal of Applied Physics, 2015, 117, 225301.	2.5	3
120	Thin Film Solar Cells Based on n-type Polycrystalline CdTe Absorber. , 2018, , .		3
121	A Model for SSTDR Signal Propagation Through Photovoltaic Strings. IEEE Journal of Photovoltaics, 2020, 10, 1846-1852.	2.5	3
122	Electron backscatter diffraction and photoluminescence of sputtered CdTe thin films. , 2011, , .		2
123	Study of point defects in ns pulsed-laser annealed CuInSe ₂ thin films. , 2013, , .		2
124	Te-rich CdTe surface by pulsed UV laser treatment for ohmic back contact formation. , 2014, , .		2
125	The importance of Se partial pressure in the laser annealing of CuInSe ₂ electrodeposited precursors. , 2014, , .		2
126	Improving the grain size of $\text{Cu}_2\text{ZnSnS}_4$ thin films by annealing thermally evaporated Cu ²⁺ . Journal of Materials Science: Materials in Electronics, 2019, 30, 4931-4935.	2.2	2

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127	Grain Growth in CdTe Films During CdCl ₂ Treatment: TeCl ₄ Theory. , 2019, , .		2
128	Continuous-wave laser annealing of metallic layers for CuInSe ₂ solar cell applications: effect of preheating treatment on grain growth. RSC Advances, 2020, 10, 584-594.	3.6	2
129	Growth and Characterization of Arsenic-Doped CdTe _{1-x} Se _x Single Crystals Grown by the Cd-Solvent Traveling Heater Method. Journal of Electronic Materials, 2020, 49, 6971-6976.	2.2	2
130	Quantifying the Environmental Sensitivity of SSTDR Signals for Monitoring PV Strings. IEEE Journal of Photovoltaics, 2022, 12, 381-387.	2.5	2
131	Magnetic cluster phases of Mn-interstitial-free (Ga,Mn)As. AIP Conference Proceedings, 2007, , .	0.4	1
132	Comparison of the Mid-Infrared Magneto-Optical Response of Ga _{1-x} Mn _x As Films Grown by Molecular Beam Epitaxy and Al _N Implantation and Pulsed Laser Melting. Journal of Superconductivity and Novel Magnetism, 2007, 20, 457-460.	1.8	1
133	Enhanced light absorption in thin-film silicon solar cells by scattering from embedded dielectric nanoparticles. , 2011, , .		1
134	Effects of annealing in sulfur vapor on electrodeposited CuInSe ₂ films. , 2012, , .		1
135	Minority carrier electron traps in CZTSSe solar cells characterized by DLTS and DLOS. , 2016, , .		1
136	Near infrared laser CdCl ₂ ; heat treatment for CdTe solar cells. , 2016, , .		1
137	Mapping carrier lifetime variations in polycrystalline CdTe thin films using confocal microscopy. , 2018, , .		1
138	Fabrication of GaN _x As _{1-x} Quantum Structures by Focused Ion Beam Patterning. AIP Conference Proceedings, 2005, , .	0.4	0
139	Mutual Passivation in Dilute GaN _x As _{1-x} Alloys. Materials Research Society Symposia Proceedings, 2005, 864, 811.	0.1	0
140	Publisher's Note: Determination of the infrared complex magnetoconductivity tensor in itinerant ferromagnets from Faraday and Kerr measurements [Phys. Rev. B75, 214416 (2007)]. Physical Review B, 2007, 76, .	3.2	0
141	Investigating sputtered Cu ₂ Si−Sn−S [CSTS] for earth abundant thin film photovoltaics. , 2010, , .		0
142	Integrated non-III-nitride/III-nitride tandem solar cell. , 2011, , .		0
143	Detection of ZnS phases in CZTS thin-films by EXAFS. , 2011, , .		0
144	Equivalent deflection angle of textured surfaces. , 2012, , .		0

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145	Study of point defects in ns pulsed-laser annealed CuInSe ₂ thin films. , 2012, , .		0
146	A method for depositing CdTe from aqueous solution. , 2016, , .		0
147	Cu ₂ ZnSnSe ₄ Photovoltaic Absorber Layers Evaluated by Transmission X-ray Microscopy Tomography: Composition Fluctuations on the Length Scale of Grains. Solar Rrl, 2017, 1, 1600024.	5.8	0
148	CdTe _{1-x} S _x (x=0.05) thin films synthesized by aqueous solution deposition and annealing. Materials Research Express, 2017, 4, 115904.	1.6	0
149	Group-V doping impact on Cd-rich CdTe single crystals grown by traveling-heater method. , 2017, , .		0
150	Large grain growth in Cu ₂ ZnSnS ₄ thin films in the absence of Na using rapid thermal annealing. , 2017, , .		0
151	Strong terahertz plasmonic resonances in thin-film Cd ₃ As ₂ : a three-dimensional Dirac semimetal. , 2018, , .		0
152	Ultrafast terahertz modulator based on metamaterial-integrated WSe ₂ thin-films. , 2018, , .		0
153	Doping properties of cadmium-rich arsenic-doped CdTe for application of single crystal solar cell. , 2018, , .		0
154	Dramatic Recrystallization During CdCl ₂ Treatment of Evaporated CdTe Thin Filmsa. , 2018, , .		0
155	Freestanding Thin-Films: Water-Assisted Liftoff of Polycrystalline CdS/CdTe Thin Films Using Heterogeneous Interfacial Engineering (Adv. Mater. Interfaces 14/2019). Advanced Materials Interfaces, 2019, 6, 1970095.	3.7	0
156	Energetic Beam Synthesis of Dilute Nitrides and Related Alloys. , 2008, , 1-34.		0