

# Willie John Padilla

## List of Publications by Year in descending order

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187  
papers

37,717  
citations

16411

64  
h-index

13338

130  
g-index

196  
all docs

196  
docs citations

196  
times ranked

15566  
citing authors

#	ARTICLE	IF	CITATIONS
1	Composite Medium with Simultaneously Negative Permeability and Permittivity. Physical Review Letters, 2000, 84, 4184-4187.	2.9	7,665
2	Perfect Metamaterial Absorber. Physical Review Letters, 2008, 100, 207402.	2.9	5,705
3	Active terahertz metamaterial devices. Nature, 2006, 444, 597-600.	13.7	2,066
4	Terahertz Magnetic Response from Artificial Materials. Science, 2004, 303, 1494-1496.	6.0	1,437
5	Metamaterial Electromagnetic Wave Absorbers. Advanced Materials, 2012, 24, OP98-120, OP181.	11.1	1,340
6	Taming the Blackbody with Infrared Metamaterials as Selective Thermal Emitters. Physical Review Letters, 2011, 107, 045901.	2.9	1,250
7	A metamaterial absorber for the terahertz regime: design, fabrication and characterization. Optics Express, 2008, 16, 7181.	1.7	1,243
8	High performance optical absorber based on a plasmonic metamaterial. Applied Physics Letters, 2010, 96, .	1.5	1,071
9	Infrared Spatial and Frequency Selective Metamaterial with Near-Unity Absorbance. Physical Review Letters, 2010, 104, 207403.	2.9	1,011
10	A metamaterial solid-state terahertz phase modulator. Nature Photonics, 2009, 3, 148-151.	15.6	864
11	Flexible thin-film black gold membranes with ultrabroadband plasmonic nanofocusing for efficient solar vapour generation. Nature Communications, 2015, 6, 10103.	5.8	783
12	Dynamical Electric and Magnetic Metamaterial Response at Terahertz Frequencies. Physical Review Letters, 2006, 96, 107401.	2.9	767
13	Experimental demonstration of frequency-agile terahertz metamaterials. Nature Photonics, 2008, 2, 295-298.	15.6	765
14	Highly flexible wide angle of incidence terahertz metamaterial absorber: Design, fabrication, and characterization. Physical Review B, 2008, 78, .	1.1	749
15	Design, theory, and measurement of a polarization-insensitive absorber for terahertz imaging. Physical Review B, 2009, 79, .	1.1	682
16	Terahertz compressive imaging with metamaterial spatial light modulators. Nature Photonics, 2014, 8, 605-609.	15.6	676
17	Liquid Crystal Tunable Metamaterial Absorber. Physical Review Letters, 2013, 110, 177403.	2.9	490
18	Reconfigurable Terahertz Metamaterials. Physical Review Letters, 2009, 103, 147401.	2.9	446

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19	A dual band terahertz metamaterial absorber. Journal Physics D: Applied Physics, 2010, 43, 225102.	1.3	424
20	Electrically resonant terahertz metamaterials: Theoretical and experimental investigations. Physical Review B, 2007, 75, .	1.1	343
21	Negative refractive index metamaterials. Materials Today, 2006, 9, 28-35.	8.3	338
22	Complementary planar terahertz metamaterials. Optics Express, 2007, 15, 1084.	1.7	307
23	Liquid Crystal Metamaterial Absorber Spatial Light Modulator for THz Applications. Advanced Optical Materials, 2014, 2, 275-279.	3.6	291
24	Deep learning for accelerated all-dielectric metasurface design. Optics Express, 2019, 27, 27523.	1.7	278
25	Experimental realization of a terahertz all-dielectric metasurface absorber. Optics Express, 2017, 25, 191.	1.7	273
26	THz Wave Modulators: A Brief Review on Different Modulation Techniques. Journal of Infrared, Millimeter, and Terahertz Waves, 2013, 34, 1-27.	1.2	266
27	Ultrafast optical switching of terahertz metamaterials fabricated on ErAs/GaAs nanoisland superlattices. Optics Letters, 2007, 32, 1620.	1.7	250
28	All-dielectric metasurface absorbers for uncooled terahertz imaging. Optica, 2017, 4, 601.	4.8	206
29	Terahertz plasmonic high pass filter. Applied Physics Letters, 2003, 83, 201-203.	1.5	197
30	High speed terahertz modulation from metamaterials with embedded high electron mobility transistors. Optics Express, 2011, 19, 9968.	1.7	194
31	Terahertz single pixel imaging with an optically controlled dynamic spatial light modulator. Optics Express, 2013, 21, 12507.	1.7	192
32	Liquid crystal programmable metasurface for terahertz beam steering. Applied Physics Letters, 2020, 116, .	1.5	169
33	Performance enhancement of terahertz metamaterials on ultrathin substrates for sensing applications. Applied Physics Letters, 2010, 97, .	1.5	158
34	Recent Progress in Electromagnetic Metamaterial Devices for Terahertz Applications. IEEE Journal of Selected Topics in Quantum Electronics, 2011, 17, 92-101.	1.9	158
35	Dynamic electromagnetic metamaterials. Materials Today, 2015, 18, 39-50.	8.3	154
36	Terahertz metamaterials on free-standing highly-flexible polyimide substrates. Journal Physics D: Applied Physics, 2008, 41, 232004.	1.3	140

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37	Loop-wire medium for investigating plasmons at microwave frequencies. Applied Physics Letters, 1999, 75, 1425-1427.	1.5	128
38	Microwave and terahertz wave sensing with metamaterials. Optics Express, 2011, 19, 21620.	1.7	127
39	Planar wallpaper group metamaterials for novel terahertz applications. Optics Express, 2008, 16, 18565.	1.7	124
40	Hybrid metamaterials enable fast electrical modulation of freely propagating terahertz waves. Applied Physics Letters, 2008, 93, .	1.5	124
41	Constant effective mass across the phase diagram of high-Tccuprates. Physical Review B, 2005, 72, .	1.1	120
42	Electrodynamics of the nodal metal state in weakly doped high-Tccuprates. Physical Review B, 2005, 72, .	1.1	119
43	Dynamic bound states in the continuum. Optica, 2019, 6, 169.	4.8	116
44	Active Terahertz Metamaterial Devices. , 2008, , .		103
45	Guiding light with conformal transformations. Optics Express, 2009, 17, 14872.	1.7	102
46	Dual-band planar electric metamaterial in the terahertz regime. Optics Express, 2008, 16, 9746.	1.7	100
47	Multifunctional metamaterial pyroelectric infrared detectors. Optica, 2017, 4, 276.	4.8	100
48	MEMS Based Structurally Tunable Metamaterials at Terahertz Frequencies. Journal of Infrared, Millimeter, and Terahertz Waves, 2011, 32, 580-595.	1.2	89
49	Broadband Optical Antireflection Enhancement by Integrating Antireflective Nanoislands with Silicon Nanoconicalâ€Frustum Arrays. Advanced Materials, 2011, 23, 5796-5800.	11.1	89
50	Phototunable Dielectric Huygens' Metasurfaces. Advanced Materials, 2018, 30, e1800278.	11.1	89
51	Dynamic Manipulation of Infrared Radiation with MEMS Metamaterials. Advanced Optical Materials, 2013, 1, 559-562.	3.6	87
52	Group theoretical description of artificial electromagnetic metamaterials. Optics Express, 2007, 15, 1639.	1.7	86
53	Thermochromic Infrared Metamaterials. Advanced Materials, 2016, 28, 871-875.	11.1	86
54	Calculation and measurement of bianisotropy in a split ring resonator metamaterial. Journal of Applied Physics, 2006, 100, 024507.	1.1	85

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55	Four-Color Metamaterial Absorber THz Spatial Light Modulator. <i>Advanced Optical Materials</i> , 2013, 1, 905-909.	3.6	84
56	Ultrathin tunable terahertz absorber based on MEMS-driven metamaterial. <i>Microsystems and Nanoengineering</i> , 2017, 3, 17033.	3.4	84
57	Extremely subwavelength planar magnetic metamaterials. <i>Physical Review B</i> , 2012, 85, .	1.1	83
58	Reconfigurable room temperature metamaterial infrared emitter. <i>Optica</i> , 2017, 4, 430.	4.8	77
59	Plasmonic Resonance toward Terahertz Perfect Absorbers. <i>ACS Photonics</i> , 2014, 1, 625-630.	3.2	75
60	Experimental Realization of a Metamaterial Detector Focal Plane Array. <i>Physical Review Letters</i> , 2012, 109, 177401.	2.9	72
61	Degenerate critical coupling in all-dielectric metasurface absorbers. <i>Optics Express</i> , 2017, 25, 24658.	1.7	72
62	Surface-wave-assisted nonreciprocity in spatio-temporally modulated metasurfaces. <i>Nature Communications</i> , 2020, 11, 1469.	5.8	72
63	Deep Learning the Electromagnetic Properties of Metamaterials—A Comprehensive Review. <i>Advanced Functional Materials</i> , 2021, 31, 2101748.	7.8	70
64	A dual-resonant terahertz metamaterial based on single-particle electric-field-coupled resonators. <i>Applied Physics Letters</i> , 2008, 93, .	1.5	67
65	Ultra-thin infrared metamaterial detector for multicolor imaging applications. <i>Optics Express</i> , 2017, 25, 23343.	1.7	66
66	Metamaterials on parylene thin film substrates: Design, fabrication, and characterization at terahertz frequency. <i>Applied Physics Letters</i> , 2010, 96, 011906.	1.5	64
67	Imaging with metamaterials. <i>Nature Reviews Physics</i> , 2022, 4, 85-100.	11.9	64
68	Broadband Light-Trapping Enhancement in an Ultrathin Film $\epsilon$ -Si Absorber Using Whispering Gallery Modes and Guided Wave Modes with Dielectric Surface-Textured Structures. <i>Advanced Materials</i> , 2013, 25, 2617-2623.	11.1	60
69	Spectroscopy of metamaterials from infrared to optical frequencies. <i>Journal of the Optical Society of America B: Optical Physics</i> , 2006, 23, 404.	0.9	56
70	Stable high temperature metamaterial emitters for thermophotovoltaic applications. <i>Applied Physics Letters</i> , 2014, 104, .	1.5	56
71	Broadband and ultrahigh optical haze thin films with self-aggregated alumina nanowire bundles for photovoltaic applications. <i>Energy and Environmental Science</i> , 2015, 8, 2650-2656.	15.6	55
72	Searching for the Slater transition in the pyrochlore $\text{Cd}_2\text{Os}_2\text{O}_7$ with infrared spectroscopy. <i>Physical Review B</i> , 2002, 66, .	1.1	52

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73	Spin-Induced Optical Conductivity in the Spin-Liquid Candidate Herbertsmithite. Physical Review Letters, 2013, 111, 127401.	2.9	52
74	Infrared probe of the anomalous magnetotransport of highly oriented pyrolytic graphite in the extreme quantum limit. Physical Review B, 2006, 74, .	1.1	49
75	Electromagnetic characterization of planar metamaterials by oblique angle spectroscopic measurements. Physical Review B, 2007, 75, .	1.1	47
76	Role of surface electromagnetic waves in metamaterial absorbers. Optics Express, 2016, 24, 6783.	1.7	47
77	Towards a Two-Dimensional Superconducting State of $\text{La}_2\text{X}_2$ a Moderate External Magnetic Field. Physical Review Letters, 2010, 104, 157002.	2.9	45
78	Metamaterial Electromagnetic Wave Absorbers (Adv. Mater. 23/2012). Advanced Materials, 2012, 24, OP181.	11.1	43
79	Neural-adjoint method for the inverse design of all-dielectric metasurfaces. Optics Express, 2021, 29, 7526.	1.7	43
80	Large-area metamaterials on thin membranes for multilayer and curved applications at terahertz and higher frequencies. Applied Physics Letters, 2009, 94, 161113.	1.5	42
81	Tunable Meta-Liquid Crystals. Advanced Materials, 2016, 28, 1553-1558.	11.1	37
82	A Triple-Mode Midinfrared Modulator for Radiative Heat Management of Objects with Various Emissivity. Nano Letters, 2021, 21, 4106-4114.	4.5	36
83	Bi-layer metamaterials as fully functional near-perfect infrared absorbers. Applied Physics Letters, 2015, 107, .	1.5	35
84	Infrared signatures of hole and spin stripes in $\text{La}_2\text{SrCuO}_4$ . Physical Review B, 2005, 72, .	1.1	34
85	A Zero-Rank, Maximum Nullity Perfect Electromagnetic Wave Absorber. Advanced Optical Materials, 2019, 7, 1801632.	3.6	33
86	Multiple Epsilon-Near-Zero Resonances in Multilayered Cadmium Oxide: Designing Metamaterial-Like Optical Properties in Monolithic Materials. ACS Photonics, 2019, 6, 1139-1145.	3.2	33
87	Graphene metamaterial spatial light modulator for infrared single pixel imaging. Optics Express, 2017, 25, 25318.	1.7	31
88	Controlling Gigahertz and Terahertz Surface Electromagnetic Waves with Metamaterial Resonators. Physical Review X, 2011, 1, .	2.8	30
89	Properties of Planar Electric Metamaterials for Novel TeraHertz Applications. Journal of Nanoelectronics and Optoelectronics, 2007, 2, 90-95.	0.1	30
90	Role of loss in all-dielectric metasurfaces. Optics Express, 2018, 26, 17669.	1.7	28

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91	Graphene metamaterial modulator for free-space thermal radiation. Optics Express, 2016, 24, 25189.	1.7	27
92	Extreme subwavelength electric GHz metamaterials. Journal of Applied Physics, 2011, 110, .	1.1	26
93	Broadband multi-interferometer spectroscopy in high magnetic fields: From THz to visible. Review of Scientific Instruments, 2004, 75, 4710-4717.	0.6	23
94	Loss compensation in Metamaterials through embedding of active transistor based negative differential resistance circuits. Optics Express, 2012, 20, 22406.	1.7	23
95	Frequency-division-multiplexed single-pixel imaging with metamaterials. Optica, 2016, 3, 133.	4.8	23
96	Single-layer terahertz metamaterials with bulk optical constants. Physical Review B, 2012, 85, .	1.1	22
97	A Subwavelength Extraordinaryâ€Opticalâ€Transmission Channel in Babinet Metamaterials. Advanced Optical Materials, 2013, 1, 221-226.	3.6	22
98	Inverse deep learning methods and benchmarks for artificial electromagnetic material design. Nanoscale, 2022, 14, 3958-3969.	2.8	21
99	Terahertz plasmonic composites. Physical Review E, 2007, 75, 036614.	0.8	17
100	Subterahertz spectroscopy at He-3 temperatures. Review of Scientific Instruments, 2003, 74, 4703-4710.	0.6	16
101	Interlayer electrostatics and unconventional vortex state in YBa <sub>2</sub> Cu <sub>3</sub> O <sub>y</sub> . Physical Review B, 2007, 76, .	1.1	16
102	External modulators for TeraHertz Quantum Cascade Lasers based on electrically-driven active metamaterials. Metamaterials, 2010, 4, 83-88.	2.2	16
103	Post-processing approach for tuning multi-layered metamaterials. Applied Physics Letters, 2014, 105, 151102.	1.5	16
104	Single Pixel Quadrature Imaging with Metamaterials. Advanced Optical Materials, 2016, 4, 66-69.	3.6	16
105	Strong Broadband Terahertz Optical Activity through Control of the Blaschke Phase with Chiral Metasurfaces. Physical Review Applied, 2017, 8, .	1.5	16
106	Infrared all-dielectric Kerker metasurfaces. Optics Express, 2021, 29, 10518.	1.7	16
107	Perfect electromagnetic absorbers from microwave to optical. SPIE Newsroom, 0, , .	0.1	16
108	Magnetic levitation of metamaterial bodies enhanced with magnetostatic surface resonances. Physical Review B, 2012, 85, .	1.1	15

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109	Interferometric direction finding with a metamaterial detector. Applied Physics Letters, 2013, 103, .	1.5	15
110	Sum Rules and Interlayer Infrared Response of the High Temperature $\text{YBa}_2\text{Cu}_3\text{O}_x$ Superconductor in an External Magnetic Field. Physical Review Letters, 2008, 101, 097008.	2.0	14
111	Superiority of terahertz over infrared transmission through bandages and burn wound ointments. Applied Physics Letters, 2016, 108, .	1.5	13
112	Learning the Physics of All- $\epsilon$ Dielectric Metamaterials with Deep Lorentz Neural Networks. Advanced Optical Materials, 2022, 10, .	3.6	13
113	Magnetic field induced modification of superfluid density and interplane spectral weight in $\text{YBa}_2\text{Cu}_3\text{O}_y$ . Physical Review B, 2009, 79, .	1.1	12
114	Dynamical electric and magnetic metamaterial response at terahertz frequencies. , 2006, , .		11
115	Strain Sensing with Metamaterial Composites. Advanced Optical Materials, 2019, 7, 1801397.	3.6	11
116	Flexible terahertz metamaterials: towards a terahertz metamaterial invisible cloak. , 2008, , .		10
117	Percolation and polaritonic effects in periodic planar nanostructures evolving from holes to islands. Applied Physics Letters, 2010, 97, .	1.5	10
118	Strong-coupling effects in cuprate high- $T_c$ superconductors by magneto-optical studies. Physical Review B, 2005, 72, .	1.1	9
119	Properties of dynamical electromagnetic metamaterials. Journal of Optics (United Kingdom), 2017, 19, 084003.	1.0	9
120	Plasmonic waveguides and metamaterial components at terahertz frequencies. , 2009, , .		8
121	Terahertz metamaterial devices. , 2007, , .		7
122	Possibility of magnetic-field-induced reconstruction of the Fermi surface in underdoped cuprates: Constraints from infrared magneto-optics. Physical Review B, 2010, 81, .	1.1	7
123	Ferromagnetic resonance in double perovskite $\text{Ba}_2\text{FeMoO}_6$ . Journal of Magnetism and Magnetic Materials, 2003, 254-255, 583-585.	1.0	5
124	A new class of metamaterials. Nature Materials, 2007, 6, 922-923.	13.3	5
125	Embedded HEMT/metamaterial composite devices for active terahertz modulation. , 2010, , .		5
126	Resonance-domain diffractive lens for the terahertz region. Optics Letters, 2018, 43, 2384.	1.7	5



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127	Split-Ring Resonator Enhanced Terahertz Antenna. , 2007, , .		5
128	Infrared spectroscopy and ellipsometry of magnetic metamaterials. , 2005, , .		4
129	Terahertz Metamaterials with Simultaneously Negative Electric and Magnetic Resonance Responses based on Bimaterial Pop Up Structures. , 2009, , .		3
130	Electronic and thermally tunable infrared metamaterial absorbers. Proceedings of SPIE, 2016, , .	0.8	3
131	Dynamical Metamaterials at Terahertz Frequencies. , 2006, , .		2
132	Terahertz metamaterials for active, tunable, and dynamic devices. , 2007, , .		2
133	Metamaterial-based imaging for potential security applications. , 2013, , .		2
134	Ultrathin Metasurface Wavelength-Selective Mirror for Millimeter/Terahertz Wave Fabry-Perot Cavities. Journal of Infrared, Millimeter, and Terahertz Waves, 2020, 41, 365-374.	1.2	2
135	Temporal coupled mode theory for all-dielectric perfect absorbers. , 2018, , .		2
136	Flexible, large-area metamaterials fabricated on thin silicon nitride membranes. , 2008, , .		2
137	Accelerated Terahertz Metasurface Design with Deep Learning. , 2020, , .		2
138	Properties of Novel Terahertz Electric Metamaterials. , 2007, , .		1
139	Metamaterials for Novel Terahertz and Millimeter Wave Devices. , 2007, , .		1
140	Terahertz Switch/Modulator Based on Metamaterials. , 2007, , .		1
141	Dual-band planar electric THz metamaterial with resonator yield analysis. , 2008, , .		1
142	Metamaterial devices for the terahertz gap. , 2009, , .		1
143	Terahertz metamaterials. , 2009, , .		1
144	Flexible and reconfigurable terahertz metamaterials. , 2009, , .		1

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145	Elimination of phase singularity to achieve superresolution in lossy metamaterials. Optics Express, 2010, 18, 12269.	1.7	1
146	Metamaterial based terahertz detector. , 2011, , .		1
147	Coded and compressive THz imaging with metamaterials. Proceedings of SPIE, 2014, , .	0.8	1
148	Taming blackbody radiation with MEMS metamaterials. , 2015, , .		1
149	Artificial electrochromic & thermochromic infrared metamaterials. , 2015, , .		1
150	Fast Tunable Terahertz Absorber Based on a MEMS-driven Metamaterial. , 2017, , .		1
151	Preface to Special Topic: Frontiers on THz photonic devices. APL Photonics, 2018, 3, 051501.	3.0	1
152	All-Dielectric Metasurfaces for THz Imaging and Sensing. , 2018, , .		1
153	Light-Matter Interactions. , 2011, , 3-37.		1
154	Mapping Active Strain Using Terahertz Metamaterial Laminates. APL Photonics, 0, , .	3.0	1
155	Fabrication of Metamaterial Perfect Absorbers. Synthesis Lectures on Electromagnetics, 2022, , 93-123.	0.5	1
156	Metamaterial Perfect Absorbers and Performance. Synthesis Lectures on Electromagnetics, 2022, , 29-91.	0.5	1
157	Fabrication and characterization of THz plasmonic filter. , 0, , .		0
158	Active metamaterials: A novel approach to manipulate terahertz waves. , 2007, , .		0
159	Metamaterials and their THz applications. , 2007, , .		0
160	Opto-electronic control of terahertz metamaterials. , 2007, , .		0
161	Electrical Control of Terahertz Metamaterials. , 2007, , .		0
162	Metamaterials for the terahertz gap. , 2008, , .		0

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163	Active THz metamaterials. , 2008, , .		0
164	Blackbody engineering with metamaterials. , 2009, , .		0
165	Taming the Blackbody with Metamaterials for Energy Harvesting Applications. , 2012, , .		0
166	THz imaging with metamaterials. , 2013, , .		0
167	Sparse Imaging with Metamaterials at Terahertz Frequencies. , 2014, , .		0
168	Terahertz properties of metallic checkerboard patterns and related structures. , 2014, , .		0
169	Digital metamaterials for single pixel imaging in the Far Infrared. , 2015, , .		0
170	Quadrature & frequency diverse terahertz imaging with metamaterials. , 2015, , .		0
171	Metamaterial-based single pixel imaging system (Presentation Recording). , 2015, , .		0
172	Mechanically tunable bi-layer terahertz metamaterials. , 2015, , .		0
173	Mimicking Liquid Crystals with Metamaterials. , 2016, , .		0
174	Terahertz chiral structures with large optical activity (Conference Presentation). , 2017, , .		0
175	Multiplexed coded time domain sampling with metamaterials. Optics Express, 2017, 25, 25797.	1.7	0
176	Artificial Plasmonic Metamaterial Fabricated by Micro-Stereolithography. , 2003, , .		0
177	Dynamically Frequency Tunable Terahertz Metamaterials. , 2007, , .		0
178	Novel Terahertz Electric Metamaterials. , 2007, , .		0
179	A Broadband Terahertz Metamaterial Electrical Modulator. , 2009, , .		0
180	Design and Fabrication of a Multispectral Infrared Metamaterial Detector. , 2016, , .		0

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181	Frequency division multiplexing THz light field imaging. , 2017, , .		0
182	Ultrathin tunable terahertz absorbers based on electrostatically actuated metamaterial. , 2019, , .		0
183	Strain Sensing with THz Metamaterial Composites. , 2020, , .		0
184	Strain Mapping with THz Metamaterial Composites. , 2021, , .		0
185	Machine Learning for Exotic Metasurfaces. , 2020, , .		0
186	Strain Mapping with THz Metamaterial Composites. , 2020, , .		0
187	Metamaterial Electromagnetic Wave Absorbers. Synthesis Lectures on Electromagnetics, 2022, 3, 1-199.	0.5	0