

# Steven A Cummer

## List of Publications by Year in descending order

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314  
papers

26,513  
citations

10986

71  
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6654

156  
g-index

319  
all docs

319  
docs citations

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times ranked

11620  
citing authors

#	ARTICLE	IF	CITATIONS
1	Environmental sources of radio frequency noise: potential impacts on magnetoreception. <i>Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology</i> , 2022, 208, 83-95.	1.6	6
2	Achromatic metasurfaces by dispersion customization for ultra-broadband acoustic beam engineering. <i>National Science Review</i> , 2022, 9, .	9.5	45
3	Quantification of Electric Fields in Fast Breakdown During Lightning Initiation From VHF-UHF Power Spectra. <i>Geophysical Research Letters</i> , 2022, 49, .	4.0	3
4	Nonreciprocal coupling in space-time modulated systems at exceptional points. <i>Physical Review B</i> , 2022, 105, .	3.2	9
5	Modeling Low-Frequency Radio Emissions From Terrestrial Gamma Ray Flash Sources. <i>Journal of Geophysical Research D: Atmospheres</i> , 2022, 127, .	3.3	3
6	Three-dimensional mapping of two coincident flashes - An upward positive flash triggered by the in-cloud activity of a downward negative flash. <i>Atmospheric Research</i> , 2021, 250, 105408.	4.1	3
7	Electrically Tunable Surface Acoustic Wave Propagation at MHz Frequencies Based on Carbon Nanotube Thin-Film Transistors. <i>Advanced Functional Materials</i> , 2021, 31, 2010744.	14.9	5
8	Efficient scattering-free wavefront transformation with power flow conformal bianisotropic acoustic metasurfaces. <i>Applied Physics Letters</i> , 2021, 118, .	3.3	15
9	Radio Frequency Emissions Associated With Multi-Pulsed Terrestrial Gamma-Ray Flashes. <i>Journal of Geophysical Research: Space Physics</i> , 2021, 126, e2020JA027928.	2.4	0
10	Space-Based Observation of a Negative Sprite With an Unusual Signature of Associated Sprite Current. <i>Journal of Geophysical Research D: Atmospheres</i> , 2021, 126, 2020JD033686.	3.3	4
11	Characterization of an underwater metamaterial made of aluminum honeycomb panels at low frequencies. <i>Journal of the Acoustical Society of America</i> , 2021, 149, 1829-1837.	1.1	5
12	Lightning Initiation From Fast Negative Breakdown is Led by Positive Polarity Dominated Streamers. <i>Geophysical Research Letters</i> , 2021, 48, e2020GL091553.	4.0	19
13	On the Terrestrial Gamma-Ray Flashes Preceding Narrow Bipolar Events. <i>Geophysical Research Letters</i> , 2021, 48, e2020GL092160.	4.0	7
14	Comparison Between High-Speed Video Observation of Sprites and Broadband Sferic Measurements. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL093094.	4.0	6
15	Simultaneous Observations of EIP, TGF, Elve, and Optical Lightning. <i>Journal of Geophysical Research D: Atmospheres</i> , 2021, 126, e2020JD033921.	3.3	15
16	Terrestrial Gamma-Ray Flashes Can Be Detected With Radio Measurements of Energetic In-Cloud Pulses During Thunderstorms. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL093627.	4.0	9
17	VHF Radio Spectrum of a Positive Leader and Implications for Electric Fields. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL093145.	4.0	13
18	Three dimensional acoustic tweezers with vortex streaming. <i>Communications Physics</i> , 2021, 4, .	5.3	38

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19	A Distinct Class of High Peak-Current Lightning Pulses Over Mountainous Terrain in Thunderstorms. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL094153.	4.0	5
20	Examining the Capacity of Hurricane Matthew (2016) in Spawning Halo/Sprite-Produced Lightning Strokes During Its Lifetime. <i>Journal of Geophysical Research D: Atmospheres</i> , 2021, 126, e2021JD035097.	3.3	2
21	Ground Observation of Negative Sprites Over a Tropical Thunderstorm as the Embryo of Hurricane Harvey (2017). <i>Geophysical Research Letters</i> , 2021, 48, e2021GL094032.	4.0	4
22	Acoustic tweezer with complex boundary-free trapping and transport channel controlled by shadow waveguides. <i>Science Advances</i> , 2021, 7, .	10.3	18
23	A GPU-Based Grid Traverse Algorithm for Accelerating Lightning Geolocation Process. <i>IEEE Transactions on Electromagnetic Compatibility</i> , 2020, 62, 489-497.	2.2	9
24	Sound vortex diffraction via topological charge in phase gradient metagratings. <i>Science Advances</i> , 2020, 6, .	10.3	73
25	Radio Interferometer Observations of an Energetic in-Cloud Pulse Reveal Large Currents Generated by Relativistic Discharges. <i>Journal of Geophysical Research D: Atmospheres</i> , 2020, 125, e2020JD032603.	3.3	29
26	Switchable directional sound emission with improved field confinement based on topological insulators. <i>Applied Physics Letters</i> , 2020, 117, .	3.3	10
27	Tunable unidirectional compact acoustic amplifier via space-time modulated membranes. <i>Physical Review B</i> , 2020, 102, .	3.2	17
28	A Satellite-Detected Terrestrial Gamma Ray Flash Produced by a Cloud-to-Ground Lightning Leader. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL089427.	4.0	9
29	Prima Facie Evidence of the Fast Impact of a Lightning Stroke on the Lower Ionosphere. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL090274.	4.0	4
30	Bianisotropic Acoustic Metasurface for Surface-Wave-Enhanced Wavefront Transformation. <i>Physical Review Applied</i> , 2020, 14, .	3.8	18
31	First Measurements of Low-Frequency Sferics Associated With Terrestrial Gamma-Ray Flashes Produced by Equatorial Thunderstorms. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL089005.	4.0	11
32	Acoustofluidic Holography for Micro- to Nanoscale Particle Manipulation. <i>ACS Nano</i> , 2020, 14, 14635-14645.	14.6	62
33	Dispersion tuning and route reconfiguration of acoustic waves in valley topological phononic crystals. <i>Nature Communications</i> , 2020, 11, 762.	12.8	135
34	Indirectly Measured Ambient Electric Fields for Lightning Initiation in Fast Breakdown Regions. <i>Geophysical Research Letters</i> , 2020, 47, e2019GL086089.	4.0	7
35	Non-reciprocal acoustic transmission via space-time modulated membranes. <i>Applied Physics Letters</i> , 2020, 116, .	3.3	28
36	On negative Sprites and the Polarity Paradox. <i>Geophysical Research Letters</i> , 2019, 46, 9370-9378.	4.0	16

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37	On the High-Energy Spectral Component and Fine Time Structure of Terrestrial Gamma Ray Flashes. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 7484-7497.	3.3	19
38	Transfer matrix method for the analysis of space-time-modulated media and systems. <i>Physical Review B</i> , 2019, 100, .	3.2	25
39	Nonreciprocal acoustic transmission in space-time modulated coupled resonators. <i>Physical Review B</i> , 2019, 100, .	3.2	45
40	Gigantic jet discharges evolve stepwise through the middle atmosphere. <i>Nature Communications</i> , 2019, 10, 4350.	12.8	21
41	A comparative study on the lightning sferics associated with terrestrial gamma-ray flashes observed in Americas and Asia. <i>Journal of Atmospheric and Solar-Terrestrial Physics</i> , 2019, 183, 67-75.	1.6	9
42	Reversal of transmission and reflection based on acoustic metagratings with integer parity design. <i>Nature Communications</i> , 2019, 10, 2326.	12.8	135
43	Low Frequency Radio Pulses Produced by Terrestrial Gamma-Ray Flashes. <i>Geophysical Research Letters</i> , 2019, 46, 6990-6997.	4.0	30
44	Fabrication and experimental demonstration of a hybrid resonant acoustic gradient index metasurface at 40 kHz. <i>Applied Physics Letters</i> , 2019, 114, .	3.3	26
45	Nonreciprocal acoustic transmission in cascaded resonators via spatiotemporal modulation. <i>Physical Review B</i> , 2019, 99, .	3.2	26
46	Nonreciprocal sound propagation in space-time modulated media. <i>Physical Review B</i> , 2019, 99, .	3.2	49
47	Lightning Initiation Processes Imaged With Very High Frequency Broadband Interferometry. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 2994-3004.	3.3	52
48	Broadband high-index prism for asymmetric acoustic transmission. <i>Applied Physics Letters</i> , 2019, 114, .	3.3	21
49	Highly Efficient Generation of Angular Momentum with Cylindrical Bianisotropic Metasurfaces. <i>Physical Review Applied</i> , 2019, 11, .	3.8	38
50	Programmable Acoustic Metasurfaces. <i>Advanced Functional Materials</i> , 2019, 29, 1808489.	14.9	130
51	A Comparative Study of the Ray Theory Model With the Finite Difference Time Domain Model for Lightning Sferic Transmission in Earth's Ionosphere Waveguide. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 3335-3349.	3.3	4
52	Power flow-conformal metamirrors for engineering wave reflections. <i>Science Advances</i> , 2019, 5, eaau7288.	10.3	53
53	Needles and Lightning Leader Dynamics Imaged with 100-200 MHz Broadband VHF Interferometry. <i>Geophysical Research Letters</i> , 2019, 46, 13556-13563.	4.0	38
54	Asymmetric Absorption in Acoustic Metamirror Based on Surface Impedance Engineering. <i>Physical Review Applied</i> , 2019, 12, .	3.8	28

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55	Potential of GPU-Based Grid Traverse Algorithm for Lightning Geolocation. , 2019, , .		0
56	Very High Frequency Radio Emissions Associated With the Production of Terrestrial Gammaâ€Ray Flashes. Geophysical Research Letters, 2018, 45, 2097-2105.	4.0	26
57	Systematic design and experimental demonstration of bianisotropic metasurfaces for scattering-free manipulation of acoustic wavefronts. Nature Communications, 2018, 9, 1342.	12.8	185
58	Spectral Characteristics of VLF Sferics Associated With RHESSI TGFs. Journal of Geophysical Research D: Atmospheres, 2018, 123, 139-159.	3.3	11
59	Systematic design of broadband path-coiling acoustic metamaterials. Journal of Applied Physics, 2018, 123, .	2.5	41
60	A surface impedance-based three-channel acoustic metasurface retroreflector. Applied Physics Letters, 2018, 112, .	3.3	49
61	Acoustic metacages for sound shielding with steady air flow. Journal of Applied Physics, 2018, 123, .	2.5	70
62	Observations of Blue Discharges Associated With Negative Narrow Bipolar Events in Active Deep Convection. Geophysical Research Letters, 2018, 45, 2842-2851.	4.0	34
63	Coherent perfect absorption and laser modes in a cylindrical structure of conjugate metamaterials. New Journal of Physics, 2018, 20, 013015.	2.9	10
64	A Study of Consecutive Terrestrial Gammaâ€Ray Flashes Using the Gammaâ€Ray Burst Monitor. Journal of Geophysical Research: Space Physics, 2018, 123, 9634-9651.	2.4	5
65	Observations of Red Sprites Above Hurricane Matthew. Geophysical Research Letters, 2018, 45, 13,158.	4.0	7
66	Bianisotropic Acoustic Metasurface For Highly Efficient Wavefront Transformation. , 2018, , .		0
67	High-efficient Acoustic Anomalous Reflector Based on Power-flow Conformal Metamirror. , 2018, , .		0
68	Energetic Radio Emissions and Possible Terrestrial Gammaâ€Ray Flashes Associated With Downward Propagating Negative Leaders. Geophysical Research Letters, 2018, 45, 10,764.	4.0	12
69	On the Causative Strokes of Halos Observed by ISUAL in the Vicinity of North America. Geophysical Research Letters, 2018, 45, 10,781.	4.0	16
70	Acoustic Imaging with Metamaterial Luneburg Lenses. Scientific Reports, 2018, 8, 16188.	3.3	51
71	Measurement of continuing charge transfer in rocket-triggered lightning with low-frequency magnetic sensor at close range. Journal of Atmospheric and Solar-Terrestrial Physics, 2018, 175, 76-86.	1.6	8
72	Roadmap on transformation optics. Journal of Optics (United Kingdom), 2018, 20, 063001.	2.2	64

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73	A Terrestrial Gamma-Ray Flash inside the Eyewall of Hurricane Patricia. Journal of Geophysical Research D: Atmospheres, 2018, 123, 4977-4987.	3.3	23
74	Harnessing Multiple Internal Reflections to Design Highly Absorptive Acoustic Metasurfaces. Physical Review Applied, 2018, 9, .	3.8	55
75	Compact acoustic retroreflector based on a mirrored Luneburg lens. Physical Review Materials, 2018, 2, .	2.4	41
76	Synthetic exceptional points and unidirectional zero reflection in non-Hermitian acoustic systems. Physical Review Materials, 2018, 2, .	2.4	47
77	Microwave metamaterials made by fused deposition 3D printing of a highly conductive copper-based filament. Applied Physics Letters, 2017, 110, .	3.3	58
78	Triggered lightning sky waves, return stroke modeling, and ionosphere effective height. Journal of Geophysical Research D: Atmospheres, 2017, 122, 3507-3527.	3.3	8
79	Coherent perfect absorber and laser modes in purely imaginary metamaterials. Physical Review A, 2017, 96, .	2.5	18
80	Gamma Ray Signatures of Neutrons From a Terrestrial Gamma Ray Flash. Geophysical Research Letters, 2017, 44, 10,063.	4.0	54
81	Tunable Asymmetric Transmission via Lossy Acoustic Metasurfaces. Physical Review Letters, 2017, 119, 035501.	7.8	313
82	Assessment of Unusual Gigantic Jets observed during the Monsoon season: First observations from Indian Subcontinent. Scientific Reports, 2017, 7, 16436.	3.3	5
83	Elves Accompanying Terrestrial Gamma Ray Flashes. Journal of Geophysical Research: Space Physics, 2017, 122, 10,563.	2.4	24
84	Analysis of lightning strokes associated with sprites observed by ISUAL in the vicinity of North America. Terrestrial, Atmospheric and Oceanic Sciences, 2017, 28, 583-595.	0.6	17
85	BANDWIDTH TUNING IN TRANSISTOR EMBEDDED METAMATERIALS USING VARIABLE RESISTANCE. Progress in Electromagnetics Research, 2016, 157, 49-61.	4.4	2
86	Reconstructing initial continuous current waveform in rocket-triggered lightning with close magnetic measurement. , 2016, , .		0
87	Transistor-based metamaterials with dynamically tunable nonlinear susceptibility. Applied Physics Letters, 2016, 109, 061901.	3.3	2
88	A sound absorbing metasurface with coupled resonators. Applied Physics Letters, 2016, 109, .	3.3	173
89	Subwavelength diffractive acoustics and wavefront manipulation with a reflective acoustic metasurface. Journal of Applied Physics, 2016, 120, .	2.5	58
90	Anisotropic acoustic metafluid for underwater operation. Journal of the Acoustical Society of America, 2016, 139, 3325-3331.	1.1	25

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91	An analysis of five negative spriteâ€parent discharges and their associated thunderstorm charge structures. Journal of Geophysical Research D: Atmospheres, 2016, 121, 759-784.	3.3	30
92	Asymmetric acoustic transmission through near-zero-index and gradient-index metasurfaces. Applied Physics Letters, 2016, 108, .	3.3	139
93	Observations of two spriteâ€producing storms in Colorado. Journal of Geophysical Research D: Atmospheres, 2016, 121, 9675-9695.	3.3	12
94	Preserving omnidirectionality in optimized asymmetric transformation optics designs. Journal of Optics (United Kingdom), 2016, 18, 044018.	2.2	5
95	Radio emissions from double RHESSI TGFs. Journal of Geophysical Research D: Atmospheres, 2016, 121, 8006-8022.	3.3	17
96	Imaging lightning intracloud initial stepped leaders by lowâ€frequency interferometric lightning mapping array. Geophysical Research Letters, 2016, 43, 5516-5523.	4.0	48
97	Groundâ€level observation of a terrestrial gamma ray flash initiated by a triggered lightning. Journal of Geophysical Research D: Atmospheres, 2016, 121, 6511-6533.	3.3	74
98	Ground detection of terrestrial gamma ray flashes from distant radio signals. Geophysical Research Letters, 2016, 43, 8728-8734.	4.0	41
99	Perfect conformal invisible device with feasible refractive indexes. Physical Review B, 2016, 93, .	3.2	20
100	Controlling sound with acoustic metamaterials. Nature Reviews Materials, 2016, 1, .	48.7	1,328
101	Acoustic Holographic Rendering with Two-dimensional Metamaterial-based Passive Phased Array. Scientific Reports, 2016, 6, 35437.	3.3	131
102	Sprite produced by consecutive impulse charge transfers following a negative stroke: Observation and simulation. Journal of Geophysical Research D: Atmospheres, 2016, 121, 4082-4092.	3.3	15
103	Observationâ€constrained modeling of the ionospheric impact of negative sprites. Geophysical Research Letters, 2016, 43, 2365-2373.	4.0	22
104	Subionospheric propagation and peak currents of preliminary breakdown pulses before negative cloudâ€toâ€ground lightning discharges. Geophysical Research Letters, 2016, 43, 1382-1391.	4.0	20
105	Insights into high peak current inâ€cloud lightning events during thunderstorms. Geophysical Research Letters, 2015, 42, 6836-6843.	4.0	64
106	Large charge moment change lightning on 31 May to 1 June 2013, including the El Reno tornadic storm. Journal of Geophysical Research D: Atmospheres, 2015, 120, 3354-3369.	3.3	3
107	Lightning leader altitude progression in terrestrial gammaâ€ray flashes. Geophysical Research Letters, 2015, 42, 7792-7798.	4.0	80
108	A lightningâ€based search for nearby observationally dim terrestrial gamma ray flashes. Journal of Geophysical Research D: Atmospheres, 2015, 120, 12,003.	3.3	5

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109	Propagation of preliminary breakdown pulses preceding cloud-to-ground lightning discharges. , 2015, , .		0
110	Broadband Acoustic Hyperbolic Metamaterial. Physical Review Letters, 2015, 115, 254301.	7.8	134
111	Design and Full Characterization of Planar Active Magnetic RF Metamaterials. IEEE Antennas and Wireless Propagation Letters, 2015, 14, 943-946.	4.0	3
112	Active acoustic metamaterials reconfigurable in real time. Physical Review B, 2015, 91, .	3.2	110
113	Negative refraction of sound. Nature Materials, 2015, 14, 363-364.	27.5	17
114	Upward electrical discharges observed above Tropical Depression Dorian. Nature Communications, 2015, 6, 5995.	12.8	36
115	Effects of Phosphor Persistence on High-Speed Imaging of Transient Luminous Events. IEEE Transactions on Plasma Science, 2015, 43, 2738-2742.	1.3	0
116	Single-sensor multispeaker listening with acoustic metamaterials. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 10595-10598.	7.1	66
117	A study of changes in apparent ionospheric reflection height within individual lightning flashes. Journal of Atmospheric and Solar-Terrestrial Physics, 2015, 136, 66-79.	1.6	21
118	Active and Applied Functional RF Metamaterials. Springer Series in Materials Science, 2015, , 21-33.	0.6	1
119	Unified approach to design linear and nonlinear acoustic metamaterials. , 2014, , .		0
120	Regional, Seasonal, and Diurnal Variations of Cloud-to-Ground Lightning with Large Impulse Charge Moment Changes. Monthly Weather Review, 2014, 142, 3666-3682.	1.4	7
121	Implications of lightning emissions for terrestrial gamma-ray flashes and associated lightning discharges. , 2014, , .		0
122	Three years of lightning impulse charge moment change measurements in the United States from ELF observations. , 2014, , .		0
123	Mechanisms of sprite initiation, morphology, and lightning polarity asymmetry. , 2014, , .		0
124	Charge motion and altitude of terrestrial gamma-ray flashes. , 2014, , .		0
125	The source altitude, electric current, and intrinsic brightness of terrestrial gamma ray flashes. Geophysical Research Letters, 2014, 41, 8586-8593.	4.0	87
126	Design and demonstration of broadband thin planar diffractive acoustic lenses. Applied Physics Letters, 2014, 105, .	3.3	92



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127	Wavefront modulation and subwavelength diffractive acoustics with an acoustic metasurface. Nature Communications, 2014, 5, 5553.	12.8	691
128	Time-varying transistor-based metamaterial for tunability, mixing, and efficient phase conjugation. Journal of Applied Physics, 2014, 115, 144501.	2.5	4
129	Three-dimensional broadband omnidirectional acoustic ground cloak. Nature Materials, 2014, 13, 352-355.	27.5	493
130	Selecting the Direction of Sound Transmission. Science, 2014, 343, 495-496.	12.6	29
131	Roadmap to electrically self-tuning metamaterials: Design and experimental validation. , 2014, , .		0
132	Non-reciprocal and highly nonlinear active acoustic metamaterials. Nature Communications, 2014, 5, 3398.	12.8	363
133	Broadband electromagnetic metamaterials with reconfigurable fluid channels. Physical Review B, 2014, 89, .	3.2	10
134	A low-frequency near-field interferometric TOA Lightning Mapping Array. Geophysical Research Letters, 2014, 41, 7777-7784.	4.0	52
135	Negative sprites produced by consecutive impulse charge transfers in negative strokes. , 2014, , .		1
136	Design for Simplified Materials in Transformation Electromagnetics. , 2014, , 117-137.		0
137	A microwave metamaterial with integrated power harvesting functionality. Applied Physics Letters, 2013, 103, .	3.3	112
138	Measurement of a Broadband Negative Index with Space-Coiling Acoustic Metamaterials. Physical Review Letters, 2013, 110, 175501.	7.8	282
139	Radio emissions from terrestrial gamma-ray flashes. Journal of Geophysical Research: Space Physics, 2013, 118, 3769-3790.	2.4	63
140	Simultaneous observations of optical lightning and terrestrial gamma ray flash from space. Geophysical Research Letters, 2013, 40, 2423-2426.	4.0	54
141	Transformation Acoustics. Springer Series in Materials Science, 2013, , 197-218.	0.6	8
142	Tunable active acoustic metamaterials. Physical Review B, 2013, 88, .	3.2	109
143	Tapered labyrinthine acoustic metamaterials for broadband impedance matching. Applied Physics Letters, 2013, 103, 201906.	3.3	143
144	Three years of lightning impulse charge moment change measurements in the United States. Journal of Geophysical Research D: Atmospheres, 2013, 118, 5176-5189.	3.3	46

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145	Coordinated observations of sprites and in-cloud lightning flash structure. Journal of Geophysical Research D: Atmospheres, 2013, 118, 6607-6632.	3.3	73
146	The meteorology of negative cloud-to-ground lightning strokes with large charge moment changes: Implications for negative sprites. Journal of Geophysical Research D: Atmospheres, 2013, 118, 7886-7896.	3.3	22
147	Radar and lightning analyses of gigantic jet-producing storms. Journal of Geophysical Research D: Atmospheres, 2013, 118, 2872-2888.	3.3	23
148	Mechanism of column and carrot sprites derived from optical and radio observations. Geophysical Research Letters, 2013, 40, 4777-4782.	4.0	16
149	Functional Metamaterials for Wireless Phase Conjugation. , 2013, , .		0
150	Active nonlinear metamaterials loaded with negative differential resistance elements and circuits. , 2012, , .		0
151	Sound Manipulation With Acoustic Metamaterials. , 2012, , .		0
152	Charge moment change and lightning-driven electric fields associated with negative sprites and halos. Journal of Geophysical Research, 2012, 117, .	3.3	47
153	High-Energy Atmospheric Physics: Terrestrial Gamma-Ray Flashes and Related Phenomena. Space Science Reviews, 2012, 173, 133-196.	8.1	257
154	Phase conjugation metamaterials: particle design and imaging experiments. Journal of Optics (United Kingdom), 2012, 15, 022201. Tj ETQq0 0 0,rgBT /Overlock 10 T	2.2	9
155	Design of an acoustic metamaterial lens using genetic algorithms. Journal of the Acoustical Society of America, 2012, 132, 2823-2833.	1.1	56
156	Nonlinear and active RF metamaterial applications using embedded devices. , 2012, , .		1
157	Relationship between sprite streamer behavior and lightning-driven electric fields. Journal of Geophysical Research, 2012, 117, .	3.3	7
158	Lightning morphology and impulse charge moment change of high peak current negative strokes. Journal of Geophysical Research, 2012, 117, .	3.3	55
159	New measurements of lightning electric fields in Florida: Waveform characteristics, interaction with the ionosphere, and peak current estimates. Journal of Geophysical Research, 2012, 117, .	3.3	75
160	Charge rearrangement by sprites over a north Texas mesoscale convective system. Journal of Geophysical Research, 2012, 117, .	3.3	11
161	Transformation Optics. Advances in Imaging and Electron Physics, 2012, 171, 195-295.	0.2	3
162	Nonreciprocal active metamaterials. Physical Review B, 2012, 85, .	3.2	58

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163	High-Energy Atmospheric Physics: Terrestrial Gamma-Ray Flashes and Related Phenomena. Space Sciences Series of ISSI, 2012, , 133-196.	0.0	1
164	Design and measurements of a broadband two-dimensional acoustic lens. Physical Review B, 2011, 84, .	3.2	160
165	Complex coordinates in transformation optics. Physical Review A, 2011, 84, .	2.5	43
166	Comparison of sprite initiation altitudes between observations and models. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	35
167	Characteristics of broadband lightning emissions associated with terrestrial gamma ray flashes. Journal of Geophysical Research, 2011, 116, .	3.3	66
168	Daytime ionospheric $D$ region sharpness derived from VLF radio atmospherics. Journal of Geophysical Research, 2011, 116, .	3.3	43
169	The rarity of terrestrial gamma-ray flashes. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	42
170	Lightning development associated with two negative gigantic jets. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	44
171	The lightning-TGF relationship on microsecond timescales. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	96
172	Magnetospheric radio tomographic imaging with IMAGE and Wind. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	2
173	Transient luminous events above two mesoscale convective systems: Charge moment change analysis. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	23
174	The properties of a gigantic jet reflected in a simultaneous sprite: Observations interpreted by a model. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	25
175	RF Limiter Metamaterial Using p-i-n Diodes. IEEE Antennas and Wireless Propagation Letters, 2011, 10, 1571-1574.	4.0	37
176	Design and measurements of a broadband two-dimensional acoustic metamaterial with anisotropic effective mass density. Journal of Applied Physics, 2011, 109, .	2.5	87
177	Powered and nonlinear RF metamaterials. Proceedings of SPIE, 2011, , .	0.8	1
178	A completely covariant approach to transformation optics. Journal of Optics (United Kingdom), 2011, 13, 024008.	2.2	44
179	Experimental Acoustic Ground Cloak in Air. Physical Review Letters, 2011, 106, 253901.	7.8	374
180	Generalized transformation optics of linear materials. Journal of Optics (United Kingdom), 2011, 13, 055105.	2.2	22

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181	Powered and active RF metamaterials. , 2011, , .		0
182	Estimation of electric charge in sprites from optical and radio observations. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	17
183	A terrestrial gamma ray flash observed from an aircraft. Journal of Geophysical Research, 2011, 116, .	3.3	54
184	Homogeneous and compact acoustic ground cloaks. Physical Review B, 2011, 83, .	3.2	55
185	Detailed observations of lightning flashes and processes associated with terrestrial gamma ray flashes. , 2011, , .		0
186	Observations of lightning flash development associated with gigantic jets. , 2011, , .		0
187	Frequency conversion by exploiting time in transformation optics. Journal of Optics (United Tj ETQq1 1 0.784314 rBT /Overlock 10 Tf	2.2	30
188	Multi-€instrumental observations of a positive gigantic jet produced by a winter thunderstorm in Europe. Journal of Geophysical Research, 2010, 115, .	3.3	63
189	Wide angle impedance matching metamaterials for waveguide-fed phased-array antennas. IET Microwaves, Antennas and Propagation, 2010, 4, 1063.	1.4	75
190	Ground-€based detection of sprites and their parent lightning flashes over Africa during the 2006 AMMA campaign. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 257-271.	2.7	39
191	Phase Conjugation and Negative Refraction using Nonlinear Active Metamaterials. Physical Review Letters, 2010, 105, 123905.	7.8	72
192	Design of layered transformation-optics devices of arbitrary shape. Physical Review A, 2010, 82, .	2.5	10
193	Transient luminous events above two mesoscale convective systems: Storm structure and evolution. Journal of Geophysical Research, 2010, 115, .	3.3	42
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