

# Joseph A Shaw

## List of Publications by Year in descending order

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148  
papers

3,736  
citations

172207

29  
h-index

138251

58  
g-index

149  
all docs

149  
docs citations

149  
times ranked

2616  
citing authors

#	ARTICLE	IF	CITATIONS
1	Seeing better in nature: contrast enhancement by near infrared imaging. European Journal of Physics, 2022, 43, 034001.	0.3	1
2	Measuring the spectral response of a division-of-focal-plane polarization imager using a grating monochromator. Applied Optics, 2022, 61, 2364.	0.9	3
3	Passive shortwave-infrared polarimetric sensing of cloud thermodynamic phase. Journal of Applied Remote Sensing, 2021, 15, .	0.6	1
4	Optical transmittance of 3D printing materials. Applied Optics, 2021, 60, 6573.	0.9	4
5	Machine learning-based region of interest detection in airborne lidar fisheries surveys. Journal of Applied Remote Sensing, 2021, 15, .	0.6	1
6	Assessing produce freshness using hyperspectral imaging and machine learning. Journal of Applied Remote Sensing, 2021, 15, .	0.6	2
7	Hyperspectral Band Selection for Multispectral Image Classification with Convolutional Networks. , 2021, , .		2
8	Applying Gaussian Mixture Models to Detect Fish from Airborne LiDAR Measurements. , 2021, , .		2
9	Cloud thermodynamic phase measured with a low-cost, ground-based, all-sky imaging polarimeter. , 2021, , .		0
10	Polarimetric characterization of a monochromator to measure the spectral response of a pixelated polarization imager. , 2021, , .		1
11	Automated Detection of Insects in Lidar Data. , 2021, , .		1
12	Generalized nighttime radiative deficits. Journal of Hydrology, 2021, 603, 126971.	2.3	4
13	Hyperspectral Dimensionality Reduction Based on Inter-Band Redundancy Analysis and Greedy Spectral Selection. Remote Sensing, 2021, 13, 3649.	1.8	12
14	Detection of Insects in Class-Imbalanced Lidar Field Measurements. , 2021, , .		3
15	Trutinor: A Conceptual Study for a Next-Generation Earth Radiant Energy Instrument. Remote Sensing, 2020, 12, 3281.	1.8	2
16	Lidar measurements of the diffuse attenuation coefficient in Yellowstone Lake. Applied Optics, 2020, 59, 3097.	0.9	8
17	Digital all-sky polarization imaging of the total solar eclipse on 21 August 2017 in Rexburg, Idaho, USA. Applied Optics, 2020, 59, F41.	0.9	6
18	Detection of polarization neutral points in observations of the combined corona and sky during the 21 August 2017 total solar eclipse. Applied Optics, 2020, 59, F71.	0.9	5

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19	Lidar remote sensing of the aquatic environment: invited. Applied Optics, 2020, 59, C92.	0.9	19
20	Fisheye imaging of sky polarization at the August 2017 solar eclipse. , 2020, , .		0
21	Passive Polarimetric Remote Sensing of Cloud Thermodynamic Phase. , 2020, , .		0
22	Efficient Convolutional Neural Networks for Multi-Spectral Image Classification. , 2019, , .		11
23	Hyperspectral imaging and neural networks to classify herbicide-resistant weeds. Journal of Applied Remote Sensing, 2019, 13, 1.	0.6	26
24	Influence of second-order reflections during polarimetric calibration with two wire-grid polarizers. Optical Engineering, 2019, 58, 1.	0.5	6
25	Temporal evolution of sky polarization during solar eclipse totality. , 2019, , .		5
26	All-sky polarization imaging of cloud thermodynamic phase. Optics Express, 2019, 27, 3528.	1.7	14
27	Field demonstration of a wing-beat modulation lidar for the 3D mapping of flying insects. OSA Continuum, 2019, 2, 332.	1.8	18
28	Visualization of all-sky polarization images referenced in the instrument, scattering, and solar principal planes. Optical Engineering, 2019, 58, 1.	0.5	10
29	Extended visual range: an observation during a total solar eclipse. , 2019, , .		0
30	Near infrared photography of atmospheric optical phenomena. , 2019, , .		0
31	Thermal imaging and heat islands: cross-discipline learning in optics and meteorology. , 2019, , .		0
32	Polarization enhancement of passive SWIR cloud thermodynamic phase remote sensing. , 2019, , .		2
33	Simulations and experimental results of cloud thermodynamic phase classification with three SWIR spectral bands. Journal of Applied Remote Sensing, 2019, 13, 1.	0.6	5
34	The VISâ€“SWIR spectrum of skylight polarization. Applied Optics, 2018, 57, 7974.	0.9	7
35	Reflective all-sky thermal infrared cloud imager. Optics Express, 2018, 26, 11276.	1.7	18
36	Airborne lidar detection and mapping of invasive lake trout in Yellowstone Lake. Applied Optics, 2018, 57, 4111.	0.9	21

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37	Extended visual range during solar eclipses. <i>Applied Optics</i> , 2018, 57, 3250.	0.9	6
38	Discrimination of herbicide-resistant kochia with hyperspectral imaging. <i>Journal of Applied Remote Sensing</i> , 2018, 12, 1.	0.6	14
39	All-sky polarization measurements of the total solar eclipse on 21 August 2017. , 2018, , .		4
40	Cloud thermodynamic phase detection with a 3-channel shortwave infrared polarimeter. , 2018, , .		4
41	Radiometric calibration of an ultra-compact microbolometer thermal imaging module. , 2017, , .		0
42	Dual-polarization airborne lidar for freshwater fisheries management and research. <i>Optical Engineering</i> , 2017, 56, 031221.	0.5	23
43	HeiÄ Physik im Yellowstone-Park. <i>Physik in Unserer Zeit</i> , 2017, 48, 37-42.	0.0	1
44	Light and color in the open airâintroduction to the feature issue. <i>Applied Optics</i> , 2017, 56, LC1.	0.9	1
45	Blue sun glints on water viewed through a polarizer. <i>Applied Optics</i> , 2017, 56, G36.	2.1	8
46	Inflight observation of Bottlingerâs rings. <i>Applied Optics</i> , 2017, 56, G113.	2.1	2
47	Airborne lidar detection of an underwater thermal vent. <i>Journal of Applied Remote Sensing</i> , 2017, 11, 1.	0.6	3
48	Development of a wing-beat-modulation scanning lidar system for insect studies. , 2017, , .		4
49	Atmospheric optics in the near infrared. <i>Applied Optics</i> , 2017, 56, G145.	2.1	7
50	Cloud thermodynamic phase detection using an all-sky imaging polarimeter. , 2017, , .		0
51	Blue sun reflected from water: optical lessons from observations of nature. , 2017, , .		1
52	Camera characterization for all-sky polarization measurements during the 2017 solar eclipse. , 2017, , .		2
53	Observing halos through airplane windows. , 2017, , .		0
54	Development of a Narrow Field of View Infrared Cloud Imager System for Optical Propagation Measurements. , 2016, , .		0

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55	Detection of a poorly resolved airplane using SWIR polarization imaging. Proceedings of SPIE, 2016, , .	0.8	3
56	Bidirectional-reflectance measurements for various snow crystal morphologies. Cold Regions Science and Technology, 2016, 124, 110-117.	1.6	4
57	Rotwein zu Wasser. Physik in Unserer Zeit, 2015, 46, 12-16.	0.0	0
58	Visible-to-SWIR wavelength variation of skylight polarization. , 2015, , .		2
59	The optics and physics of near infrared imaging. Proceedings of SPIE, 2015, , .	0.8	16
60	Light and color in the open air: Introduction to the feature issue. Applied Optics, 2015, 54, LC1.	0.9	1
61	Infrared Moon imaging for remote sensing of atmospheric smoke layers. Applied Optics, 2015, 54, B64.	0.9	13
62	Colors of thermal pools at Yellowstone National Park. Applied Optics, 2015, 54, B128.	0.9	15
63	Visible and invisible mirages: comparing inferior mirages in the visible and thermal infrared. Applied Optics, 2015, 54, B76.	0.9	8
64	Calibration of uncooled LWIR microbolometer imagers to enable long-term field deployment. , 2014, , .		11
65	Das farbenprÄchtige Glitzern frischen Schnees. Physik in Unserer Zeit, 2014, 45, 97-98.	0.0	0
66	Comparison of Long-Wave Infrared Imaging and Visible/Near-Infrared Imaging of Vegetation for Detecting Leaking $\text{CO}_2$ Gas. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2014, 7, 1651-1657.	2.3	8
67	Effects of wildfire smoke on atmospheric polarization. , 2014, , .		2
68	Radiometric calibration of infrared imagers using an internal shutter as an equivalent external blackbody. Optical Engineering, 2014, 53, 123106.	0.5	32
69	Radiometry and the Friis transmission equation. American Journal of Physics, 2013, 81, 33-37.	0.3	153
70	Measurement of advective soil gas flux: results of field and laboratory experiments with $\text{CO}_2$ . Environmental Earth Sciences, 2013, 70, 1717-1726.	1.3	4
71	Brilliant colours from a white snow cover. Physics Education, 2013, 48, 322-331.	0.3	7
72	Teaching and learning geometric optics in middle school through the Turning Eyes to the Big Sky project. Optical Engineering, 2013, 52, 069001.	0.5	2

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73	Correcting for focal-plane-array temperature dependence in microbolometer infrared cameras lacking thermal stabilization. <i>Optical Engineering</i> , 2013, 52, 061304.	0.5	61
74	The physics of near-infrared photography. <i>European Journal of Physics</i> , 2013, 34, S51-S71.	0.3	56
75	Physics principles in radiometric infrared imaging of clouds in the atmosphere. <i>European Journal of Physics</i> , 2013, 34, S111-S121.	0.3	45
76	How clear-sky polarization varies with wavelength in the visible-NIR. <i>Proceedings of SPIE</i> , 2013, , .	0.8	0
77	Thermal Imaging of Vegetation to Detect CO <sub>2</sub> Gas Leaking From Underground. , 2013, , .		0
78	Multispectral imaging systems on tethered balloons for optical remote sensing education and research. <i>Journal of Applied Remote Sensing</i> , 2012, 6, 063613.	0.6	17
79	Long-wave infrared imaging of vegetation for detecting leaking CO <sub>2</sub> gas. <i>Journal of Applied Remote Sensing</i> , 2012, 6, 063612.	0.6	17
80	Low-cost multispectral vegetation imaging system for detecting leaking CO <sub>2</sub> gas. <i>Applied Optics</i> , 2012, 51, A59.	0.9	10
81	Wavelength dependence of the degree of polarization in cloud-free skies: simulations of real environments. <i>Optics Express</i> , 2012, 20, 15559.	1.7	45
82	Multispectral imaging system on tethered balloons for optical remote sensing education and outreach. , 2012, , .		0
83	Airborne lidar detection and characterization of internal waves in a shallow fjord. <i>Journal of Applied Remote Sensing</i> , 2012, 6, 063611.	0.6	42
84	Cloud optical depth measured with ground-based, uncooled infrared imagers. , 2012, , .		5
85	Long-wave infrared imaging of vegetation for detecting leaking CO <sub>2</sub> gas. <i>Proceedings of SPIE</i> , 2012, , .	0.8	2
86	Detection of Leaking CO <sub>2</sub> Gas With Vegetation Reflectances Measured By a Low-Cost Multispectral Imager. <i>IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing</i> , 2012, 5, 699-706.	2.3	14
87	Analyzing Change in Yellowstone's Terrestrial Emittance with Landsat Imagery. <i>GIScience and Remote Sensing</i> , 2012, 49, 317-345.	2.4	5
88	Experimental observation of signature changes in bulk soil electrical conductivity in response to engineered surface CO <sub>2</sub> leakage. <i>International Journal of Greenhouse Gas Control</i> , 2012, 7, 20-29.	2.3	19
89	Icy wave-cloud lunar corona and cirrus iridescence. <i>Applied Optics</i> , 2011, 50, F6.	2.1	13
90	Light and Color in the Open Air: introduction to the feature issue. <i>Applied Optics</i> , 2011, 50, LC1.	2.1	1

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91	Long-wave infrared imaging for non-invasive beehive population assessment. Optics Express, 2011, 19, 399.	1.7	39
92	Effects of surface reflectance on skylight polarization measurements at the Mauna Loa Observatory. Optics Express, 2011, 19, 16008.	1.7	41
93	Comparison of full-sky polarization and radiance observations to radiative transfer simulations which employ AERONET products. Optics Express, 2011, 19, 18602.	1.7	39
94	Comparison of sky polarization observations to radiative transfer simulations which use AERONET retrieval data. , 2011, , .		1
95	Dual-polarization lidar identification of ice in a corona-producing wave cloud. Proceedings of SPIE, 2011, , .	0.8	0
96	Observational Studies of Atmospheric Aerosols over Bozeman, Montana, Using a Two-Color Lidar, a Water Vapor DIAL, a Solar Radiometer, and a Ground-Based Nephelometer over a 24-h Period. Journal of Atmospheric and Oceanic Technology, 2011, 28, 320-336.	0.5	3
97	Continuous outdoor operation of an all-sky polarization imager. , 2010, , .		5
98	A shallow subsurface controlled release facility in Bozeman, Montana, USA, for testing near surface CO2 detection techniques and transport models. Environmental Earth Sciences, 2010, 60, 227-239.	1.3	146
99	Multi-spectral imaging of vegetation for detecting CO2 leaking from underground. Environmental Earth Sciences, 2010, 60, 313-323.	1.3	34
100	Measuring the modulation transfer function of an imaging spectrometer with rooflines of opportunity. Optical Engineering, 2010, 49, 103201.	0.5	12
101	All-sky imaging of visible-wavelength atmospheric polarization at Mauna Loa, Hawaii. , 2010, , .		0
102	Observational studies of atmospheric aerosols in the lower troposphere using multiple sensors. , 2010, , .		0
103	Review of Alternative Methods for Estimating Terrestrial Emittance and Geothermal Heat Flux for Yellowstone National Park Using Landsat Imagery. GIScience and Remote Sensing, 2010, 47, 460-479.	2.4	21
104	Water Vapor Profiling Using a Widely Tunable, Amplified Diode-Laser-Based Differential Absorption Lidar (DIAL). Journal of Atmospheric and Oceanic Technology, 2009, 26, 733-745.	0.5	40
105	A controlled field pilot for testing near surface CO2 detection techniques and transport models. Energy Procedia, 2009, 1, 2143-2150.	1.8	35
106	Infrared cloud imaging in support of Earth-space optical communication. Optics Express, 2009, 17, 7862.	1.7	45
107	Correcting Calibrated Infrared Sky Imagery for the Effect of an Infrared Window. Journal of Atmospheric and Oceanic Technology, 2009, 26, 2403-2412.	0.5	5
108	Large-area blackbody emissivity variation with observation angle. , 2009, , .		5

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109	Digital all-sky polarization imaging of partly cloudy skies. Applied Optics, 2008, 47, H190.	2.1	82
110	Light and Color in the Open Air: introduction to the feature issue. Applied Optics, 2008, 47, LC1.	2.1	0
111	A survey of infrared polarization in the outdoors. Proceedings of SPIE, 2007, , .	0.8	7
112	Range-resolved optical detection of honeybees by use of wing-beat modulation of scattered light for locating land mines. Applied Optics, 2007, 46, 3007.	2.1	42
113	Optical detection of honeybees by use of wing-beat modulation of scattered laser light for locating explosives and land mines. Applied Optics, 2006, 45, 1839.	2.1	50
114	Review of passive imaging polarimetry for remote sensing applications. Applied Optics, 2006, 45, 5453.	2.1	1,249
115	Dual-field imaging polarimeter using liquid crystal variable retarders. Applied Optics, 2006, 45, 5470.	2.1	89
116	Dual-polarization lidar using a liquid crystal variable retarder. Optical Engineering, 2006, 45, 106202.	0.5	31
117	Visual demonstration of three-scale sea-surface roughness under light wind conditions. IEEE Transactions on Geoscience and Remote Sensing, 2005, 43, 1751-1762.	2.7	7
118	Cloud statistics measured with the infrared cloud imager (ICI). IEEE Transactions on Geoscience and Remote Sensing, 2005, 43, 2000-2007.	2.7	50
119	Radiometric cloud imaging with an uncooled microbolometer thermal infrared camera. Optics Express, 2005, 13, 5807.	1.7	60
120	Polarization lidar measurements of honey bees in flight for locating land mines. Optics Express, 2005, 13, 5853.	1.7	94
121	The Digital Blue Sky at Night. Optics and Photonics News, 2005, 16, 18.	0.4	4
122	Optical Engineering. Optics and Photonics News, 2005, 16, 32.	0.4	0
123	Coronas and iridescence in mountain wave clouds. Applied Optics, 2003, 42, 476.	2.1	24
124	Coronas and Iridescence in Mountain Wave Clouds Over Northeastern Colorado. Bulletin of the American Meteorological Society, 2003, 84, 1373-1386.	1.7	11
125	Radiosonde Humidity Soundings and Microwave Radiometers during Nauru99. Journal of Atmospheric and Oceanic Technology, 2003, 20, 953-971.	0.5	38
126	The Effect of Instrument Polarization Sensitivity on Sea Surface Remote Sensing with Infrared Spectroradiometers. Journal of Atmospheric and Oceanic Technology, 2002, 19, 820-827.	0.5	13



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127	Infrared polarization in the natural Earth environment. , 2002, 4819, 129.		8
128	Measuring Arctic clouds with the infrared cloud imager. , 2002, , .		2
129	Scanning infrared radiometer for measuring the air-sea temperature difference. Applied Optics, 2001, 40, 4807.	2.1	5
130	Polarimetric measurements of long-wave infrared spectral radiance from water. Applied Optics, 2001, 40, 5985.	2.1	20
131	Atmospheric measurements with unattended FTIR and Lidar. , 2001, , .		20
132	Atmospheric measurements with unattended FTIR and Lidar. , 2001, , .		2
133	<title>Snapshot LWIR hyperspectral polarimetric imager for ocean surface sensing</title>. , 2000, 4133, 270.		16
134	Polarized infrared emissivity for a rough water surface. Optics Express, 2000, 7, 375.	1.7	34
135	Modeling infrared lunar radiance. Optical Engineering, 1999, 38, 1763.	0.5	16
136	Observations of downwelling infrared spectral radiance at Mauna Loa, Hawaii during the 1997-1998 ENSO event. Geophysical Research Letters, 1999, 26, 1727-1730.	1.5	10
137	Degree of linear polarization in spectral radiances from water-viewing infrared radiometers. Applied Optics, 1999, 38, 3157.	2.1	68
138	Glittering Light on Water. Optics and Photonics News, 1999, 10, 43.	0.4	9
139	Ground-Based Remote Sensor Observations during PROBE in the Tropical Western Pacific. Bulletin of the American Meteorological Society, 1999, 80, 257-270.	1.7	13
140	<title>Measurements of midwave and longwave infrared polarization from water</title>. , 1999, , .		3
141	Scanning-laser glint measurements of sea-surface slope statistics. Applied Optics, 1997, 36, 4202.	2.1	119
142	Fractal laser glints from the ocean surface. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1997, 14, 1144.	0.8	12
143	Infrared spectral radiance measurements in the tropical Pacific atmosphere. Journal of Geophysical Research, 1997, 102, 4353-4356.	3.3	50
144	Comparison of Infrared Atmospheric Brightness Temperatures Measured by a Fourier Transform Spectrometer and a Filter Radiometer. Journal of Atmospheric and Oceanic Technology, 1995, 12, 1124-1128.	0.5	7

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145	Instrument effects in polarized infrared images. <i>Optical Engineering</i> , 1995, 34, 1396.	0.5	15
146	The snows of interior Alaska. <i>Atmospheric Environment Part A General Topics</i> , 1993, 27, 2091-2096.	1.3	11
147	Improved calibration of infrared radiometers for cloud temperature remote sensing. <i>Optical Engineering</i> , 1993, 32, 1002.	0.5	23
148	Computer-aided design of two dimensional electric-type hyperthermia applicators using the finite-difference time-domain method. <i>IEEE Transactions on Biomedical Engineering</i> , 1991, 38, 861-870.	2.5	18