David Keith Wilson

List of Publications by Year
in descending order

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138 papers	2,056 citations	279798 23 h-index	315739 38 g-index
178 all docs	178 docs citations	178 times ranked	798 citing authors

#	Article	IF	Citations
1	Equations for finite-difference, time-domain simulation of sound propagation in moving inhomogeneous media and numerical implementation. Journal of the Acoustical Society of America, 2005, 117, 503-517.	1.1	130
2	Simple, relaxational models for the acoustical properties of porous media. Applied Acoustics, 1997, 50, 171-188.	3.3	121
3	Relaxationâ€matched modeling of propagation through porous media, including fractal pore structure. Journal of the Acoustical Society of America, 1993, 94, 1136-1145.	1.1	107
4	An Alternative Function For The Wind And Temperature Gradients In Unstable Surface Layers. Boundary-Layer Meteorology, 2001, 99, 151-158.	2.3	86
5	Acoustic Tomographic Monitoring of the Atmospheric Surface Layer. Journal of Atmospheric and Oceanic Technology, 1994, 11, 751-769.	1.3	63
6	Performance bounds for acoustic direction-of-arrival arrays operating in atmospheric turbulence. Journal of the Acoustical Society of America, 1998, 103, 1306-1319.	1.1	54
7	A turbulence spectral model for sound propagation in the atmosphere that incorporates shear and buoyancy forcings. Journal of the Acoustical Society of America, 2000, 108, 2021-2038.	1.1	51
8	Acoustic scattering and the spectrum of atmospheric turbulence. Journal of the Acoustical Society of America, 1999, 105, 30-34.	1.1	47
9	Time-domain calculations of sound interactions with outdoor ground surfaces. Applied Acoustics, 2007, 68, 173-200.	3.3	47
10	Time-dependent stochastic inversion in acoustic travel-time tomography of the atmosphere. Journal of the Acoustical Society of America, 2006, 119, 2579-2588.	1.1	45
11	Acoustic propagation through anisotropic, surfaceâ€layer turbulence. Journal of the Acoustical Society of America, 1994, 96, 1080-1095.	1.1	36
12	Tomographic reconstruction of atmospheric turbulence with the use of time-dependent stochastic inversion. Journal of the Acoustical Society of America, 2007, 122, 1416-1425.	1.1	36
13	Time-domain equations for sound propagation in rigid-frame porous media (L). Journal of the Acoustical Society of America, 2004, 116, 1889-1892.	1.1	29
14	Sound propagation through and scattering by internal gravity waves in a stably stratified atmosphere. Journal of the Acoustical Society of America, 2005, 118, 3420-3429.	1.1	29
15	Sound propagation in a turbulent atmosphere near the ground: A parabolic equation approach. Journal of the Acoustical Society of America, 2001, 109, 1894-1908.	1.1	27
16	The sound-speed gradient and refraction in the near-ground atmosphere. Journal of the Acoustical Society of America, 2003, 113, 750-757.	1.1	27
17	Quasi-Wavelet Model of Von KÃ¡rmÃ¡n Spectrum of Turbulent Velocity Fluctuations. Boundary-Layer Meteorology, 2004, 112, 33-56.	2.3	26
18	A computational study of the effect of windscreen shape and flow resistivity on turbulent wind noise reduction. Journal of the Acoustical Society of America, 2011, 129, 1740-1747.	1.1	26

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19	Sound propagation in the atmospheric surface layer: Comparison of experiment with FFP predictions. Applied Acoustics, 1993, 40, 325-346.	3.3	25
20	The effect of turbulent intermittency on scattering into an acoustic shadow zone. Journal of the Acoustical Society of America, 1996, 99, 3393-3400.	1.1	25
21	Recent progress in acoustic travel-time tomography of the atmospheric surface layer. Meteorologische Zeitschrift, 2009, 18, 125-133.	1.0	25
22	Empirical Orthogonal Function Analysis of the Weakly Convective Atmospheric Boundary Layer. Part I: Eddy Structures. Journals of the Atmospheric Sciences, 1996, 53, 801-823.	1.7	24
23	Source localization from an elevated acoustic sensor array in a refractive atmosphere. Journal of the Acoustical Society of America, 2008, 124, 3413-3420.	1.1	23
24	Forchheimerâ€type nonlinearities for highâ€intensity propagation of pure tones in airâ€saturated porous media. Journal of the Acoustical Society of America, 1988, 84, 350-359.	1.1	22
25	Performance bounds for passive sensor arrays operating in a turbulent medium: Plane-wave analysis. Journal of the Acoustical Society of America, 2003, 113, 2704-2718.	1.1	22
26	Prediction of outdoor sound transmission loss with an artificial neural network. Applied Acoustics, 2006, 67, 324-345.	3.3	22
27	PadÃ© approximation in time-domain boundary conditions of porous surfaces. Journal of the Acoustical Society of America, 2007, 122, 107-112.	1.1	22
28	Sound field computations in a stratified, moving medium. Journal of the Acoustical Society of America, 1993, 94, 400-407.	1.1	21
29	Sound Propagation in the Nocturnal Boundary Layer. Journals of the Atmospheric Sciences, 2003, 60, 2473-2486.	1.7	21
30	Proper orthogonal decomposition and cluster weighted modeling for sensitivity analysis of sound propagation in the atmospheric surface layer. Journal of the Acoustical Society of America, 2007, 122, 1374-1390.	1.1	20
31	Three-Dimensional Acoustic Travel-Time Tomography of the Atmosphere. Acta Acustica United With Acustica, 2008, 94, 349-358.	0.8	20
32	Description and quantification of uncertainty in outdoor sound propagation calculations. Journal of the Acoustical Society of America, 2014, 136, 1013-1028.	1.1	18
33	A Three-Dimensional Correlation/Spectral Model for Turbulent Velocities in a Convective Boundary Layer. Boundary-Layer Meteorology, 1997, 85, 35-52.	2.3	17
34	Quasi-wavelet calculations of sound scattering behind barriers. Applied Acoustics, 2004, 65, 605-627.	3.3	17
35	Acoustic pulse propagation in an urban environment using a three-dimensional numerical simulation. Journal of the Acoustical Society of America, 2014, 135, 3231-3242.	1.1	17
36	Empirical Orthogonal Function Analysis of the Weakly Convective Atmospheric Boundary Layer. Part II: Eddy Energetics. Journals of the Atmospheric Sciences, 1996, 53, 824-841.	1.7	16

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37	Characterization of uncertainty in outdoor sound propagation predictions. Journal of the Acoustical Society of America, 2007, 121, EL177-EL183.	1.1	16
38	SIMULATION OF TURBULENT WIND NOISE REDUCTION BY POROUS WINDSCREENS USING HIGH-ORDER SCHEMES. Journal of Computational Acoustics, 2010, 18, 321-334.	1.0	16
39	Measurement and prediction of ultralow frequency ocean ambient noise off the eastern U.S. coast. Journal of the Acoustical Society of America, 2003, 113, 3117.	1.1	15
40	Time-dependent stochastic inversion in acoustic tomography of the atmosphere with reciprocal sound transmission. Measurement Science and Technology, 2008, 19, 125501.	2.6	15
41	Coherence function and mean field of plane and spherical sound waves propagating through inhomogeneous anisotropic turbulence. Journal of the Acoustical Society of America, 2004, 115, 497-506.	1.1	14
42	Incorporating source directionality into outdoor sound propagation calculations. Journal of the Acoustical Society of America, 2011, 130, 3608-3622.	1.1	14
43	Wave and extra-wide-angle parabolic equations for sound propagation in a moving atmosphere. Journal of the Acoustical Society of America, 2020, 147, 3969-3984.	1.1	14
44	Statistical moments of the sound field propagating in a random, refractive medium near an impedance boundary. Journal of the Acoustical Society of America, 2001, 109, 1909-1922.	1.1	13
45	Optimal sensor placement with signal propagation effects and inhomogeneous coverage preferences. International Journal of Sensor Networks, 2011, 9, 107.	0.4	13
46	Atmospheric scattering for varying degrees of saturation and turbulent intermittency. Journal of the Acoustical Society of America, 2001, 109, 1871-1880.	1.1	12
47	The effect of changing scatterer positions on acoustic time-reversal refocusing in a 2D urban environment at low frequencies. Journal of Geophysics and Engineering, 2007, 4, 276-284.	1.4	12
48	Acoustic array tracking performance under moderately complex environmental conditions. Applied Acoustics, 2007, 68, 1241-1262.	3.3	12
49	An experimental study of the atmospheric-driven variability of impulse sounds. Journal of the Acoustical Society of America, 2018, 144, 822-840.	1.1	12
50	Vertical and slanted sound propagation in the near-ground atmosphere: Amplitude and phase fluctuations. Journal of the Acoustical Society of America, 2021, 149, 2055-2071.	1.1	12
51	Simulation of detection and beamforming with acoustical ground sensors. , 2002, 4743, 50.		11
52	Quasi-Wavelet Models of Turbulent Temperature Fluctuations. Boundary-Layer Meteorology, 2006, 120, 1-23.	2.3	11
53	Spatial structure of low-frequency wind noise. Journal of the Acoustical Society of America, 2007, 122, EL223-EL228.	1.1	11
54	Dependence of predictive skill for outdoor narrowband and broadband sound levels on the atmospheric representation. Noise Control Engineering Journal, 2008, 56, 465.	0.3	11

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55	Spatial-temporal coherence of acoustic signals propagating in a refractive, turbulent atmosphere. Journal of the Acoustical Society of America, 2014, 136, 2414-2431.	1.1	11
56	Performance bounds for passive sensor arrays operating in a turbulent medium: Spherical-wave analysis. Journal of the Acoustical Society of America, 2004, 116, 987-1001.	1.1	10
57	Discrimination of Wind Noise and Sound Waves by Their Contrasting Spatial and Temporal Properties. Acta Acustica United With Acustica, 2010, 96, 991-1002.	0.8	10
58	Scattering of acoustic waves by intermittent temperature and velocity fluctuations. Journal of the Acoustical Society of America, 1997, 101, 2980-2982.	1.1	9
59	Calculated coherence and extinction of sound waves propagating through anisotropic, shear-induced turbulent velocity fluctuations. Journal of the Acoustical Society of America, 1999, 105, 658-671.	1.1	9
60	Spherical wave propagation through inhomogeneous, anisotropic turbulence: Log-amplitude and phase correlations. Journal of the Acoustical Society of America, 2004, 115, 120-130.	1.1	9
61	Sound-wave coherence in atmospheric turbulence with intrinsic and global intermittency. Journal of the Acoustical Society of America, 2008, 124, 743-757.	1.1	9
62	Behaviors of Vortex Wake in Random Atmospheric Turbulence. Journal of Aircraft, 2009, 46, 2139-2144.	2.4	9
63	Moment-screen method for wave propagation in a refractive medium with random scattering. Waves in Random and Complex Media, 2009, 19, 369-391.	2.7	9
64	Quasi-wavelet formulations of turbulence and other random fields with correlated properties. Probabilistic Engineering Mechanics, 2009, 24, 343-357.	2.7	9
65	Information-criterion based selection of models for community noise annoyance. Journal of the Acoustical Society of America, 2013, 133, EL195-EL201.	1.1	9
66	Vertical and slanted sound propagation in the near-ground atmosphere: Coherence and distributions. Journal of the Acoustical Society of America, 2021, 150, 3109-3126.	1.1	9
67	Multilevel modeling and regression of community annoyance to transportation noise. Journal of the Acoustical Society of America, 2017, 142, 2905-2918.	1.1	8
68	Extra-wide-angle parabolic equations in motionless and moving media. Journal of the Acoustical Society of America, 2019, 145, 1031-1047.	1.1	8
69	Natural temporal variability of atmospheric acoustic absorption coefficients. Applied Acoustics, 1991, 34, 111-121.	3.3	7
70	Comparisons between physics-based, engineering, and statistical learning models for outdoor sound propagation. Journal of the Acoustical Society of America, 2016, 139, 2640-2655.	1.1	7
71	Cross-frequency coherence and pulse propagation in a turbulent atmosphere. Journal of the Acoustical Society of America, 2016, 140, 678-691.	1.1	7
72	Statistical Characterization of Sound Propagation Over Vertical and Slanted Paths in a Turbulent Atmosphere. Acta Acustica United With Acustica, 2018, 104, 571-585.	0.8	7

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73	Spatial Processing of Urban Acoustic Wave Fields from High-Performance Computations. , 2007, , .		6
74	Assessment of systematic measurement errors for acoustic travel-time tomography of the atmosphere. Journal of the Acoustical Society of America, 2013, 134, 1802-1813.	1.1	6
75	Strength and wave parameters for sound propagation in random media. Journal of the Acoustical Society of America, 2017, 141, 2079-2092.	1.1	6
76	Scattered signal distributions, parametric uncertainties, and Bayesian sequential updating. Proceedings of Meetings on Acoustics, 2017, , .	0.3	6
77	Numerical modeling of mesoscale infrasound propagation in the Arctic. Journal of the Acoustical Society of America, 2022, 151, 138-157.	1.1	6
78	Use of waveâ€numberâ€domain windows in fast field programs. Journal of the Acoustical Society of America, 1991, 89, 448-450.	1.1	5
79	Transverse-longitudinal coherence function of a sound field for line-of-sight propagation in a turbulent atmosphere. Waves in Random and Complex Media, 2009, 19, 670-691.	2.7	5
80	Effect of randomly varying impedance on the interference of the direct and ground-reflected waves. Journal of the Acoustical Society of America, 2011, 130, 1844-1850.	1.1	5
81	Streetâ€Scale Mapping of Urban Radio Frequency Noise at Very High Frequency and Ultra High Frequency. Radio Science, 2019, 54, 934-948.	1.6	5
82	Machine-learning of long-range sound propagation through simulated atmospheric turbulence. Journal of the Acoustical Society of America, 2021, 149, 4384-4395.	1.1	5
83	A physics-informed neural network for sound propagation in the atmospheric boundary layer. Proceedings of Meetings on Acoustics, 2020, , .	0.3	5
84	Acoustic tomographic monitoring of the atmospheric boundary layer. Journal of the Acoustical Society of America, 1992, 92, 3441-3441.	1.1	4
85	Acoustic/seismic signal propagation and sensor performance modeling. , 2007, , .		4
86	Full-field sensitivity analysis through dimension reduction and probabilistic surrogate models. Probabilistic Engineering Mechanics, 2010, 25, 380-392.	2.7	4
87	Radiative transfer formulation for forest acoustics. Journal of the Acoustical Society of America, 2017, 142, 3767-3780.	1.1	4
88	Non-Markov character of the phase fluctuations for sound propagation over relatively small ranges in the turbulent atmosphere. Journal of the Acoustical Society of America, 2019, 145, 3359-3369.	1.1	4
89	Acoustic scintillations and angle-of-arrival fluctuations observed outdoors with a large planar vertical microphone array. Journal of the Acoustical Society of America, 1999, 106, L24-L29.	1.1	3
90	Development of a high-fidelity simulation capability for battlefield acoustics. , 2003, , .		3

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91	Probabilistic framework for characterizing uncertainty in the performance of networked battlefield sensors. Proceedings of SPIE, 2008, , .	0.8	3
92	Quasi-wavelet formulations of turbulence and wave scattering. Meteorologische Zeitschrift, 2009, 18, 237-252.	1.0	3
93	Optimal placement of multiple types of communicating sensors with availability and coverage redundancy constraints. , 2010, , .		3
94	Sonic Anemometer as a Small Acoustic Tomography Array. Boundary-Layer Meteorology, 2013, 149, 165-178.	2.3	3
95	Effective wavenumbers for sound scattering by trunks, branches, and the canopy in a forest. Journal of the Acoustical Society of America, 2017, 142, EL177-EL183.	1.1	3
96	A computational method whose time had come. Journal of the Acoustical Society of America, 2020, 148, R7-R8.	1.1	3
97	Urban noise distributions and the influence of geometric spreading on skewness. Journal of the Acoustical Society of America, 2021, 150, 783-800.	1.1	3
98	Distribution of the two-point product of complex amplitudes in the fully saturated scattering regime. Journal of the Acoustical Society of America, 2020, 148, EL347-EL352.	1.1	3
99	<title>Battlefield decision aid for acoustical ground sensors with interface to meteorological data sources</title>. , 2001, , .		2
100	Scattering of Urban Sound Energy from High-Performance Computations. , 2008, , .		2
101	Signal fading curves from computed urban acoustic wave fields. , 2008, , .		2
102	Application of the equivalent source method to directional noise sources. Noise Control Engineering Journal, 2012, 60, 137.	0.3	2
103	Optimisation of numbers, types, and locations of wireless sensors with communication, finite supply, and multiple-sensor coverage constraints. International Journal of Sensor Networks, 2017, 23, 222.	0.4	2
104	Correspondence between sound propagation in discrete and continuous random media with application to forest acoustics. Journal of the Acoustical Society of America, 2018, 143, 1194-1205.	1.1	2
105	Theory for spectral broadening of narrowband signals in the atmosphere and experiment with an acoustic source onboard an unmanned aerial vehicle. Journal of the Acoustical Society of America, 2019, 145, 3703-3714.	1.1	2
106	Bayesian estimation of mean transmission loss along multiple paths with randomly scattered signals. Proceedings of Meetings on Acoustics, 2018, , .	0.3	2
107	Signal power distributions for simulated outdoor sound propagation in varying refractive conditions. Journal of the Acoustical Society of America, 2022, 151, 3895-3906.	1.1	2
108	Experimental determination of the effective structure-function parameter for atmospheric turbulence. Journal of the Acoustical Society of America, 1999, 105, 912-914.	1.1	1

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109	Software for multimodal battlefield signal modeling and optimal sensor placement. , 2012, , .		1
110	Source localization corrections for airborne acoustic platforms based on a climatological assessment of temperature and wind velocity profiles. Proceedings of SPIE, 2012, , .	0.8	1
111	Characterization of infrared imaging performance within a general statistical framework for environmental impacts on battlefield signals and sensing. , 2013, , .		1
112	Source localization results for airborne acoustic platforms in the 2010 Yuma Proving Ground test. Proceedings of SPIE, 2013, , .	0.8	1
113	Variational inference of cluster-weighted models for local and global sensitivity analysis. International Journal of Reliability and Safety, 2014, 8, 196.	0.2	1
114	Impact of signal scattering and parametric uncertainties on receiver operating characteristics. , 2017, , .		1
115	Acoustic pulse propagation in forests. Journal of the Acoustical Society of America, 2018, 143, 968-979.	1.1	1
116	Recent progress in acoustic tomography of the atmosphere. IOP Conference Series: Earth and Environmental Science, 2008, 1, 012008.	0.3	1
117	Simulation of fluid flow in and around a porous windscreen. Journal of the Acoustical Society of America, 2006, 119, 3294-3295.	1.1	1
118	Utilization of an acoustic tomography array as a large sonic anemometer/thermometer. Proceedings of Meetings on Acoustics, 2012, , .	0.3	1
119	Non-Markov behavior of acoustic phase variance in the atmospheric boundary layer. Waves in Random and Complex Media, 0, , 1-16.	2.7	1
120	<title>High-fidelity simulation capability for virtual testing of seismic and acoustic sensors</title>. , 2005, 5796, 105.		0
121	Implementing statistical acoustic characterization of urban terrain into a decision support tool. , 2008, , .		0
122	On the influence of problem definition in sensor placement optimization. , 2009, , .		0
123	General framework for predicting environmental effects on signatures and sensor performance in complex environments. Proceedings of SPIE, 2009, , .	0.8	0
124	Environmental awareness for sensor and emitter employment. , 2010, , .		0
125	Variational Inference of Cluster-Weighted Models for Sensitivity Analysis. , 2011, , .		0
126	General software for multimodal signal modeling and optimal sensor placement: Environmental Awareness for Sensor and Emitter Employment (EASEE). , 2012, , .		0

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127	Integration of radio-frequency transmission and radar in general software for multimodal battlefield signal modeling. Proceedings of SPIE, 2013, , .	0.8	0
128	Modeling of signal propagation and sensor performance for infrasound and blast noise. Proceedings of SPIE, 2017, , .	0.8	0
129	EASEE: an open architecture approach for modeling battlespace signal and sensor phenomenology. , 2017, , .		0
130	Mimicking a perfectly matched layer with a porous medium. Proceedings of Meetings on Acoustics, 2019, , .	0.3	0
131	Summary of Special Session â€œUncertainty in Propagation Predictionâ€• Proceedings of Meetings on Acoustics, 2019, , .	0.3	0
132	Acoustic Travel-Time Tomography of the Atmospheric Surface Layer. , 2009, , .		0
133	Statistical moments of a wideband acoustic signal. Proceedings of Meetings on Acoustics, 2014, , .	0.3	0
134	Atmospheric turbulence effects on acoustic angleâ€•ofâ€•arrival estimations. Journal of the Acoustical Society of America, 1996, 100, 2746-2747.	1.1	0
135	Modeling RF and acoustic signal propagation in complex environments. , 2018, , .		0
136	Bayesian learning of random signal distributions in complex environments. , 2019, , .		0
137	Bayesian classifier performance for realistically randomized signals. , 2020, , .		0
138	Ask an Acoustician: D. Keith Wilson. Acoustics Today, 0, 16, 71.	1.0	0