Jay B Jeffries

List of Publications by Year
in descending order

128 papers	6,160 citations	61857 43 h-index	76769 74 g-index
129 all docs	129 docs citations	129 times ranked	2263 citing authors

#	Article	IF	Citations
1	Infrared laser-absorption sensing for combustion gases. Progress in Energy and Combustion Science, 2017, 60, 132-176.	15.8	471
2	Calibration-free wavelength-modulation spectroscopy for measurements of gas temperature and concentration in harsh environments. Applied Optics, 2009, 48, 5546.	2.1	446
3	Collisional Quenching of CH(A), OH(A), and NO(A) in Low Pressure Hydrocarbon Flames. Combustion and Flame, 1998, 114, 502-514.	2.8	299
4	Extension of wavelength-modulation spectroscopy to large modulation depth for diode laser absorption measurements in high-pressure gases. Applied Optics, 2006, 45, 1052.	2.1	275
5	Development of a sensor for temperature and water concentration in combustion gases using a single tunable diode laser. Measurement Science and Technology, 2003, 14, 1459-1468.	1.4	194
6	Fitting of calibration-free scanned-wavelength-modulation spectroscopy spectra for determination of gas properties and absorption lineshapes. Applied Optics, 2014, 53, 356.	0.9	189
7	Diode-laser absorption sensor for line-of-sight gas temperature distributions. Applied Optics, 2001, 40, 4404.	2.1	152
8	Low pressure flame determinations of rate constants for OH(A) and CH(A) chemiluminescence. Combustion and Flame, 2002, 131, 59-69.	2.8	144
9	Near-infrared diode laser absorption diagnostic for temperature and water vapor in a scramjet combustor. Applied Optics, 2005, 44, 6701.	2.1	120
10	Laser-induced fluorescence determination of temperatures in low pressure flames. Applied Optics, 1989, 28, 3556.	2.1	105
11	Scanned-wavelength-modulation-spectroscopy sensor for CO, CO2, CH4 and H2O in a high-pressure engineering-scale transport-reactor coal gasifier. Fuel, 2015, 150, 102-111.	3.4	101
12	Vibrational relaxation of OH (Xâ€‰2Îi, v=2). Journal of Chemical Physics, 1989, 90, 2174-2181.	1.2	99
13	Measurement of Non-Uniform Temperature Distributions Using Line-of-Sight Absorption Spectroscopy. AIAA Journal, 2007, 45, 411-419.	1.5	99
14	Temperature-dependent mid-IR absorption spectra of gaseous hydrocarbons. Journal of Quantitative Spectroscopy and Radiative Transfer, 2007, 107, 407-420.	1.1	96
15	<i>In situ</i>combustion measurements of H₂O and temperature near 2.5 Âµm using tunable diode laser absorption. Measurement Science and Technology, 2008, 19, 075604.	1.4	87
16	LIF measurements in methane/air flames of radicals important in prompt-NO formation. Combustion and Flame, 1992, 88, 137-148.	2.8	80
17	Absolute CH concentration measurements in low-pressure methane flames: comparisons with model results. Combustion and Flame, 2000, 121, 223-235.	2.8	78
18	TDL absorption sensors for gas temperature and concentrations in a high-pressure entrained-flow coal gasifier. Proceedings of the Combustion Institute, 2013, 34, 3593-3601.	2.4	77

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19	Strategies for laser-induced fluorescence detection of nitric oxide in high-pressure flames III Comparison of Aâ€“X excitation schemes. Applied Optics, 2003, 42, 4922.	2.1	68
20	High-bandwidth scanned-wavelength-modulation spectroscopy sensors for temperature and H₂O in a rotating detonation engine. Measurement Science and Technology, 2014, 25, 105104.	1.4	66
21	Rotational-level-dependent quenching of OH(A2Î£+) at flame temperatures. Chemical Physics Letters, 1988, 152, 160-166.	1.2	65
22	Vibrational energy transfer in OH Xâ€‰2Î, v=2 and 1. Journal of Chemical Physics, 1990, 92, 7258-7263.	1.2	65
23	Quenching of Aâ€‰2Î£+ OH at 300 K by several colliders. Journal of Chemical Physics, 1990, 92, 5218-5222.	1.2	65
24	Laser-induced fluorescence of O(3p^3P), O_2, and NO near 226 nm: photolytic interferences and simultaneous excitation in flames. Optics Letters, 1989, 14, 767.	1.7	64
25	Rotational level dependence of predissociation in the vâ€™=3 level of OH Aâ€‰2Î£+. Journal of Chemical Physics, 1992, 96, 4366-4371.	1.2	64
26	Diode laser measurements of linestrength and temperature-dependent lineshape parameters of H2O-, CO2-, and N2-perturbed H2O transitions near 2474 and 2482nm. Journal of Quantitative Spectroscopy and Radiative Transfer, 2013, 130, 100-111.	1.1	61
27	TDLAS-based sensors for in situ measurement of syngas composition in a pressurized, oxygen-blown, entrained flow coal gasifier. Applied Physics B: Lasers and Optics, 2014, 116, 33-42.	1.1	59
28	Wavelength-agile diode-laser sensing strategies for monitoring gas properties in optically harsh flows: application in cesium-seeded pulse detonation engine. Optics Express, 2002, 10, 505.	1.7	58
29	Diode laser measurements of temperature-dependent collisional-narrowing and broadening parameters of Ar-perturbed H2O transitions at 1391.7 and 1397.8nm. Journal of Quantitative Spectroscopy and Radiative Transfer, 2008, 109, 132-143.	1.1	56
30	Supersonic Mass-Flux Measurements via Tunable Diode Laser Absorption and Nonuniform Flow Modeling. AIAA Journal, 2011, 49, 2783-2791.	1.5	56
31	A potential remote sensor of CO in vehicle exhausts using 2.3 Âµm diode lasers. Measurement Science and Technology, 2000, 11, 1576-1584.	1.4	55
32	Two-color absorption spectroscopy strategy for measuring the column density and path average temperature of the absorbing species in nonuniform gases. Applied Optics, 2013, 52, 7950.	0.9	55
33	Measurements of NH_3 and CO_2 with distributed-feedback diode lasers near 20 Âµm in bioreactor vent gases. Applied Optics, 2001, 40, 4395.	2.1	53
34	Experimental study of H2O spectroscopic parameters in the near-IR (6940â€“7440cmâˆ’1) for gas sensing applications at elevated temperature. Journal of Quantitative Spectroscopy and Radiative Transfer, 2007, 103, 565-577.	1.1	52
35	Active control of lean blowout in a swirl-stabilized combustor using a tunable diode laser. Proceedings of the Combustion Institute, 2007, 31, 3215-3223.	2.4	50
36	Multi-species laser absorption sensors for in situ monitoring of syngas composition. Applied Physics B: Lasers and Optics, 2014, 115, 9-24.	1.1	50

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37	High-sensitivity interference-free diagnostic for measurement of methane in shock tubes. Journal of Quantitative Spectroscopy and Radiative Transfer, 2015, 156, 80-87.	1.1	49
38	Laser pyrolysis/laser fluorescence studies of high-temperature reaction rates: description of the method and results for hydroxyl + methane, propane, and propylene. The Journal of Physical Chemistry, 1985, 89, 1269-1278.	2.9	48
39	Large-modulation-depth 2f spectroscopy with diode lasers for rapid temperature and species measurements in gases with blended and broadened spectra. Applied Optics, 2004, 43, 6500.	2.1	48
40	Measurements of spectral parameters of water-vapour transitions near 1388 and 1345 nm for accurate simulation of high-pressure absorption spectra. Measurement Science and Technology, 2007, 18, 1185-1194.	1.4	48
41	Real-time, in situ, continuous monitoring of CO in a pulverized-coal-fired power plant with a 2.3Âμm laser absorption sensor. Applied Physics B: Lasers and Optics, 2013, 110, 359-365.	1.1	48
42	Nitric oxide formation and reburn in low-pressure methane flames. Proceedings of the Combustion Institute, 1998, 27, 1377-1384.	0.3	47
43	Radiative lifetime and quenching of the 3pâ€‰4D0 state of atomic nitrogen. Journal of Chemical Physics, 1987, 86, 4876-4884.	1.2	46
44	Single-ended mid-infrared laser-absorption sensor for time-resolved measurements of water concentration and temperature within the annulus of a rotating detonation engine. Proceedings of the Combustion Institute, 2019, 37, 1435-1443.	2.4	44
45	In situ absorption sensor for NO in combustion gases with a 5.2Î¼m quantum-cascade laser. Proceedings of the Combustion Institute, 2011, 33, 725-733.	2.4	43
46	Infrared laser absorption sensors for multiple performance parameters in a detonation combustor. Proceedings of the Combustion Institute, 2015, 35, 3739-3747.	2.4	43
47	Development of laser absorption techniques for real-time, in-situ dual-species monitoring (NO/NH3,) Tj ETQq1 1 0.784314 rgBT /Overlo	2.4	41
48	Laser-induced fluorescence temperature measurements in a dc arcjet used for diamond deposition. Applied Optics, 1993, 32, 4629.	2.1	40
49	Pulse Detonation Engine Characterization and Control Using Tunable Diode-Laser Sensors. Journal of Propulsion and Power, 2003, 19, 568-572.	1.3	40
50	Sensitive and rapid laser diagnostic for shock tube kinetics studies using cavity-enhanced absorption spectroscopy. Optics Express, 2014, 22, 9291.	1.7	40
51	Selection of NIR H2O absorption transitions for in-cylinder measurement of temperature in IC engines. Measurement Science and Technology, 2005, 16, 2437-2445.	1.4	39
52	Single-ended mid-infrared laser-absorption sensor for simultaneous in situ measurements of H_2O, CO_2, CO, and temperature in combustion flows. Applied Optics, 2016, 55, 9347.	2.1	37
53	Rapid temperature tuning of a 14-Î¼m diode laser with application to high-pressure H_2O absorption spectroscopy. Optics Letters, 2001, 26, 1568.	1.7	36
54	Sensing and Control of Combustion Instabilities in Swirl-Stabilized Combustors Using Diode-Laser Absorption. AIAA Journal, 2007, 45, 390-398.	1.5	36

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55	Multispecies Midinfrared Absorption Measurements in a Hydrocarbon-Fueled Scramjet Combustor. Journal of Propulsion and Power, 2014, 30, 1595-1604.	1.3	35
56	Line intensities and temperature-dependent line broadening coefficients of Q-branch transitions in the v2 band of ammonia near 10.4Î¼m. Journal of Quantitative Spectroscopy and Radiative Transfer, 2016, 175, 90-99.	1.1	33
57	Transition probabilities in OH A2Î£+-X2Îi: bands with Î½' = 0 and 1, Î½â€³ = 0 TO 4. Chemical Physics Letters, 1987, 138, 425-430.	1.2	32
58	Parity propensities in rotational energy transfer of OH Xâ€‰2Îi with helium. Journal of Chemical Physics, 1991, 94, 7547-7549.	1.2	32
59	Diode-Laser Sensor for Air-Mass Flux 1: Design and Wind Tunnel Validation. AIAA Journal, 2007, 45, 2204-2212.	1.5	32
60	Time-resolved in situ detection of CO in a shock tube using cavity-enhanced absorption spectroscopy with a quantum-cascade laser near 46Âµm. Optics Express, 2014, 22, 24559.	1.7	32
61	Shock-tube measurements of excited oxygen atoms using cavity-enhanced absorption spectroscopy. Applied Optics, 2015, 54, 8766.	2.1	32
62	Collisional quenching of A 2Î£+ NO and A 2Î” CH in low pressure flames. Chemical Physics Letters, 1991, 178, 533-537.	1.2	31
63	NH Aâ€‰3Îi quenching at 1400 K. Journal of Chemical Physics, 1986, 84, 4970-4975.	1.2	30
64	Spatially Resolved Water Measurements in a Scramjet Combustor Using Diode Laser Absorption. Journal of Propulsion and Power, 2014, 30, 1551-1558.	1.3	29
65	Mid-infrared absorption measurements of liquid hydrocarbon fuels near. Journal of Quantitative Spectroscopy and Radiative Transfer, 2009, 110, 2135-2147.	1.1	28
66	Quenching of OH(Aâ€‰2Î£+, vâ€™=0) by NH3 from 250 to 1400 K. Journal of Chemical Physics, 1986, 85, 1898-1903.	1.2	27
67	Collisional energy transfer in predissociative OH laser-induced fluorescence in flames. Optics Letters, 1993, 18, 1355.	1.7	27
68	Design of a Fiber-Coupled Mid-Infrared Fuel Sensor for Pulse Detonation Engines. AIAA Journal, 2007, 45, 772-778.	1.5	27
69	Tunable mid-IR laser absorption sensor for time-resolved hydrocarbon fuel measurements. Proceedings of the Combustion Institute, 2007, 31, 807-815.	2.4	27
70	The OH A2Î£+-X2Îi(4,2) band: Line positions and linewidths. Journal of Molecular Spectroscopy, 1990, 143, 183-185.	0.4	25
71	Wavelength-Scanned Tunable Diode Laser Temperature Measurements in a Model Gas Turbine Combustor. AIAA Journal, 2007, 45, 420-425.	1.5	25
72	Laser-induced fluorescence detection of the NS radical in sulfur and nitrogen doped methane flames. Combustion and Flame, 1986, 64, 55-64.	2.8	24

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73	Vibrationally excited O2 in flames: Measurements on vâ€˜=9â€“11 by laserâ€induced fluorescence. Journal of Chemical Physics, 1987, 86, 2500-2504.	1.2	24
74	Temperature measurement using ultraviolet laser absorption of carbon dioxide behind shock waves. Applied Optics, 2005, 44, 6599.	2.1	24
75	Diode-Laser Sensor for Air-Mass Flux 2: Non-Uniform Flow Modeling and Aeroengine Tests. AIAA Journal, 2007, 45, 2213-2223.	1.5	24
76	Thermal Equilibration During Cavitation. Science, 1992, 256, 248-248.	6.0	22
77	In situmeasurements of HCl during plasma etching of poly-silicon using a diode laser absorption sensor. Measurement Science and Technology, 2003, 14, 1662-1670.	1.4	22
78	Temperature sensing in shock-heated evaporating aerosol using wavelength-modulation absorption spectroscopy of CO₂near 2.7 Âµm. Measurement Science and Technology, 2010, 21, 105603.	1.4	21
79	Transition probabilities in OH Aâ€‰2Î£+â†’Xâ€‰2Î i: Bands with vâ€²=2 and 3. Journal of Chemical Physics, 1997, 106, 6262-6267.	1.2	20
80	Two-wavelength mid-IR absorption diagnostic for simultaneous measurement of temperature and hydrocarbon fuel concentration. Proceedings of the Combustion Institute, 2009, 32, 821-829.	2.4	20
81	Mass Flux Sensing via Tunable Diode Laser Absorption of Water Vapor. AIAA Journal, 2010, 48, 2687-2693.	1.5	20
82	Shock-Tube Measurement of Acetone Dissociation Using Cavity-Enhanced Absorption Spectroscopy of CO. Journal of Physical Chemistry A, 2015, 119, 7257-7262.	1.1	20
83	Detection of Cl in rf plasmas by laserâ€excited stimulated emission. Applied Physics Letters, 1989, 55, 1182-1184.	1.5	19
84	Diode Laser Absorption Sensor for Combustion Progress in a Model Scramjet. Journal of Propulsion and Power, 2014, 30, 550-557.	1.3	19
85	Application of wavelength-scanned wavelength-modulation spectroscopy H2O absorption measurements in an engineering-scale high-pressure coal gasifier. Applied Physics B: Lasers and Optics, 2014, 117, 411-421.	1.1	19
86	Mid-infrared laser absorption spectroscopy of NO2 at elevated temperatures. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 187, 364-374.	1.1	19
87	Laser-induced fluorescence detection of HCO in a low-pressure flame. Proceedings of the Combustion Institute, 1991, 23, 1847-1854.	0.3	18
88	Ultraviolet absorption cross-sections of hot carbon dioxide. Chemical Physics Letters, 2004, 399, 490-495.	1.2	18
89	Temperature- and composition-dependent mid-infrared absorption spectrum of gas-phase gasoline: Model and measurements. Fuel, 2008, 87, 3600-3609.	3.4	18
90	Collisional quenching of highly rotationally excited NH (Aâ€‰3Î i). Journal of Chemical Physics, 1992, 97, 2400-2405.	1.2	17

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91	Characterization of a Large-Scale Arcjet Facility Using Tunable Diode Laser Absorption Spectroscopy. AIAA Journal, 2017, 55, 3757-3766.	1.5	17
92	Comparing Laserâ€Induced Fluorescence Measurements and Computer Models of Low Pressure Flame Chemistry. Zeitschrift Fur Elektrotechnik Und Elektrochemie, 1992, 96, 1410-1416.	0.9	16
93	Laser-induced fluorescence diagnostics of a propane/air flame with a manganese fuel additive. Combustion and Flame, 1994, 99, 261-268.	2.8	16
94	Laser-based CO concentration and temperature measurements in high-pressure shock-tube studies of n-heptane partial oxidation. Applied Physics B: Lasers and Optics, 2020, 126, 1.	1.1	16
95	Laser-induced fluorescence spectroscopy of the B2.PI., A2.DELTA. and C2.SIGMA.+ states of the nitrogen sulfide (NS) radical. The Journal of Physical Chemistry, 1989, 93, 1082-1090.	2.9	14
96	Electronic energy transfer from Bâ€‰â€™â€‰2Î” to Bâ€‰2Î£+ in SiCl. Journal of Chemical Physics, 1991, 95, 1628-1634.	2.2	14
97	Sensors for high-pressure, harsh combustion environments using wavelength-agile diode lasers. Proceedings of the Combustion Institute, 2002, 29, 2661-2667.	2.4	14
98	Hypersonic Scramjet Testing via Diode Laser Absorption in a Reflected Shock Tunnel. Journal of Propulsion and Power, 2014, 30, 1586-1594.	1.3	14
99	Collisional quenching and energy transfer in NSBâ€‰2Î. Journal of Chemical Physics, 1987, 86, 6839-6846.	1.2	13
100	Measurement of Water Vapor Levels for Investigating Vitiation Effects on Scramjet Performance. Journal of Propulsion and Power, 2011, 27, 1315-1317.	1.3	13
101	Quenching and vibrational energy transfer in theBâ€‰2Î state of the NS molecule. Journal of Chemical Physics, 1989, 91, 5343-5351.	1.2	12
102	Absolute concentration, temperature, and velocity measurements in a diamond depositing dc-arcjet reactor. Diamond and Related Materials, 1998, 7, 165-169.	1.8	12
103	Intramultiplet energy transfer in the collisions of 3pâ€‰4D0 nitrogen atoms with nitrogen molecules. Journal of Chemical Physics, 1989, 91, 2200-2205.	1.2	11
104	Measurement of atomic concentrations in reacting flows through the use of stimulated gain or loss. Applied Optics, 1995, 34, 1127.	2.1	11
105	Flow characterization of a diamond-depositing dc arcjet by laser-induced fluorescence. Applied Optics, 2000, 39, 3704.	2.1	11
106	An In-cylinder Laser Absorption Sensor for Crank-angle-resolved Measurements of Gasoline Concentration and Temperature. SAE International Journal of Engines, 0, 3, 373-382.	0.4	11
107	Cavity-enhanced absorption spectroscopy with a ps-pulsed UV laser for sensitive, high-speed measurements in a shock tube. Optics Express, 2016, 24, 308.	1.7	11
108	The quantitative lif determination of OH concentrations in low-pressure flames. Proceedings of the Combustion Institute, 1989, 22, 1857-1866.	0.3	10

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109	Time-resolved sub-ppm CH_3 detection in a shock tube using cavity-enhanced absorption spectroscopy with a ps-pulsed UV laser. Proceedings of the Combustion Institute, 2017, 36, 4549-4556.	2.4	10
110	CH and Formaldehyde Structures in Partially-Premixed Methane/Air Coflow Flames. Combustion Science and Technology, 2001, 167, 291-310.	1.2	9
111	Two-color-absorption sensor for time-resolved measurements of gasoline concentration and temperature. Applied Optics, 2009, 48, 6492.	2.1	9
112	HCO concentration in flames via quantitative laser-induced fluorescence. Proceedings of the Combustion Institute, 1998, 27, 453-460.	0.3	8
113	Near-infrared diode laser hydrogen fluoride monitor for dielectric etch. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2004, 22, 2479-2486.	0.9	8
114	Rotational level dependence of the electronic quenching of NH2AÌƒ by helium. Journal of Chemical Physics, 1990, 93, 237-241.	1.2	7
115	Spatially-resolved TDLAS measurements of temperature, H_2O column density, and velocity in a direct-connect scramjet combustor. , 2014, , .		6
116	Absolute Concentration Measurements of Chemicallyâ€Important Flame Radicals. Israel Journal of Chemistry, 1999, 39, 41-48.	1.0	5
117	Monitoring temperature in high enthalpy arc-heated plasma flows using tunable diode laser absorption spectroscopy. , 2013, , .		5
118	A single-ended, mid-IR sensor for time-resolved temperature and species measurements in a hydrogen/ethylene-fueled rotating detonation engine. , 2019, , .		5
119	Design and implementation of a laser-based absorption spectroscopy sensor for <i>in situ</i> monitoring of biomass gasification. Measurement Science and Technology, 2017, 28, 125501.	1.4	4
120	Laserâ€induced fluorescence detection of polycyclic aromatic hydrocarbons in a dc arcjet used for diamond deposition. Applied Physics Letters, 1993, 63, 3002-3004.	1.5	3
121	Vibrational and rotational energy transfer in X2Îi OH. AIP Conference Proceedings, 1989, , .	0.3	2
122	State-specific collision dynamics of OH radicals and N atoms. AIP Conference Proceedings, 1986, , .	0.3	1
123	Quantitative Laser-Induced Fluorescence Measurements of Reactive Species: Spectroscopy and Collision Dynamics of SiC<i>l</i>. Materials Research Society Symposia Proceedings, 1988, 117, 41.	0.1	1
124	Crank-angle-resolved Measurements of Air-fuel Ratio, Temperature, and Liquid Fuel Droplet Scattering in a Direct-injection Gasoline Engine. , 0, , .		1
125	A Compact Fiber-Coupled NIR/MIR Laser Absorption Instrument for the Simultaneous Measurement of Gas-Phase Temperature and CO, CO_2, and H_2O Concentration. Sensors, 2022, 22, 1286.	2.1	1
126	Hypersonic scramjet testing via TDLAS measurements of temperature and column density in a reflected shock tunnel. , 2014, , .		0

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127	Laser-absorption sensing of gas composition of products from coal gasification. Proceedings of SPIE, 2014, , .	0.8	0
128	Mid-Infrared Gas Sensing For Combustion Applications. , 2008, , .		0