Frank Beyrau

List of Publications by Year
in descending order

106 papers	2,477 citations	159525 30 h-index	243529 44 g-index
108 all docs	108 docs citations	108 times ranked	1410 citing authors

#	Article	IF	Citations
1	Influence of Adhesive Tapes as Thermal Interface Materials on the Thermal Load of a Compact Electrical Machine. World Electric Vehicle Journal, 2022, 13, 42.	1.6	5
2	Phosphor thermometry at the surface of single reacting large-diameter spherical coke particles to characterise combustion for packed bed furnaces. Proceedings of the Combustion Institute, 2021, 38, 4225-4232.	2.4	7
3	Single-shot two-dimensional multi-angle light scattering (2D-MALS) technique for nanoparticle aggregate sizing. Applied Physics B: Lasers and Optics, 2021, 127, 1.	1.1	9
4	A measuring system for monitoring multi-nozzle spraying tools. Measurement Science and Technology, 2021, 32, 055902.	1.4	2
5	Quantification and mitigation of PIV bias errors caused by intermittent particle seeding and particle lag by means of large eddy simulations. Measurement Science and Technology, 2021, 32, 104006.	1.4	9
6	A summary of new developments in phosphor thermometry. Measurement Science and Technology, 2021, 32, 120101.	1.4	2
7	Sparse-Lagrangian PDF Modelling of Silica Synthesis from Silane Jets in Vitiated Co-flows with Varying Inflow Conditions. Flow, Turbulence and Combustion, 2021, 106, 1167-1194.	1.4	5
8	Time-resolved temperature and velocity field measurements in gas turbine film cooling flows with mainstream turbulence. Experiments in Fluids, 2021, 62, 1.	1.1	11
9	The Impact of Large Mobile Air Purifiers on Aerosol Concentration in Classrooms and the Reduction of Airborne Transmission of SARS-CoV-2. International Journal of Environmental Research and Public Health, 2021, 18, 11523.	1.2	29
10	Experimental investigation of axisymmetric, turbulent, annular jets discharged through the nozzle of the SPP1980 SpraySyn burner under isothermal and reacting conditions. Experimental Thermal and Fluid Science, 2020, 114, 110052.	1.5	25
11	Recent developments in phosphor thermometry. Measurement Science and Technology, 2020, 31, 020102.	1.4	4
12	Flame synthesis of nanophosphors using sub-micron aerosols. Proceedings of the Combustion Institute, 2019, 37, 1231-1239.	2.4	20
13	A delayed gating approach for interference-free ratio-based phosphor thermometry. Measurement Science and Technology, 2019, 30, 074002.	1.4	12
14	Numerical Investigation and Experimental Comparison of the Gas Dynamics in a Highly Underexpanded Confined Real Gas Jet. Flow, Turbulence and Combustion, 2019, 103, 141-173.	1.4	7
15	Optimal design and operation of a CHP based district heating system including a heat storage and electrode boiler to increase self-consumption. , 2019, , .		7
16	Joint experimental and numerical study of silica particulate synthesis in a turbulent reacting jet. Proceedings of the Combustion Institute, 2019, 37, 1213-1220.	2.4	13
17	The effect of operating parameters on the formation of fuel wall films as a basis for the reduction of engine particulate emissions. Fuel, 2019, 238, 375-384.	3.4	26
18	Investigation of the tin-doped phosphor (Sr,Mg)₃(PO₄)₂:Sn²⁺ for fluid temperature measurements. Optical Materials Express, 2019, 9, 802.	1.6	14

#	Article	IF	Citations
19	Planar measurements of spray-induced wall cooling using phosphor thermometry. Experiments in Fluids, 2018, 59, 1.	1.1	12
20	Temperature measurement techniques for gas and liquid flows using thermographic phosphor tracer particles. Progress in Energy and Combustion Science, 2018, 64, 93-156.	15.8	161
21	Investigation of a highly underexpanded jet with real gas effects confined in a channel: flow field measurements. Experiments in Fluids, 2018, 59, 1.	1.1	13
22	Systematic Investigation of Fuel Film Evaporation. , 2018, , .		10
23	Comparison of the Spray and the Spray/Wall Interaction of Two Gasoline Injectors. International Journal of Automotive Technology, 2018, 19, 615-622.	0.7	7
24	Comparison of <scp>Raman</scp>â€active crystals as a narrowband probe light source for picosecond threeâ€color vibrational <scp>CARS</scp> thermometry. Journal of Raman Spectroscopy, 2017, 48, 1026-1032.	1.2	2
25	The influence of flash-boiling on spray-targeting and fuel film formation. Fuel, 2017, 208, 587-594.	3.4	56
26	Investigation of BAM:<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si2.gif" overflow="scroll"><mml:msup><mml:mrow><mml:mtext>Eu</mml:mtext></mml:mrow><mml:mrow><mml:mn>2</mml:mn><mml:mo particles as a tracer for temperature imaging in flames. Combustion and Flame, 2017, 184, 249-251.	2.8	14
27	Comparative flame structure investigation of normal and inverse turbulent non-premixed oxy-fuel flames using experimentally recorded and numerically predicted Rayleigh and OH-PLIF signals. Proceedings of the Combustion Institute, 2017, 36, 1713-1720.	2.4	16
28	Thermographic laser Doppler velocimetry using the phase-shifted luminescence of BAM:Eu^2+ phosphor particles for thermometry. Optics Express, 2017, 25, 11833.	1.7	21
29	Three-color vibrational CARS thermometry of fuel-rich ethylene/air flames using a potassium gadolinium tungstate Raman-active crystal as a source of narrowband probe radiation. Applied Optics, 2017, 56, E77.	2.1	4
30	Development of an optical thermal history coating sensor based on the oxidation of a divalent rare earth ion phosphor. Measurement Science and Technology, 2016, 27, 115103.	1.4	6
31	Simultaneous kHz-rate temperature and velocity field measurements in the flow emanating from angled and trenched film cooling holes. International Journal of Heat and Mass Transfer, 2016, 103, 390-400.	2.5	41
32	On the kinetics of thermal oxidation of the thermographic phosphor BaMgAL 10 O 17 :Eu. Materials and Design, 2016, 108, 145-150.	3.3	11
33	Temperature field measurements in liquids using ZnO thermographic phosphor tracer particles. Experiments in Fluids, 2016, 57, 1.	1.1	21
34	Soft Tissue Phantoms for Realistic Needle Insertion: A Comparative Study. Annals of Biomedical Engineering, 2016, 44, 2442-2452.	1.3	58
35	Novel method for the measurement of liquid film thickness during fuel spray impingement on surfaces. Optics Express, 2016, 24, 2542.	1.7	49
36	Systematic LIF fuel wall film investigation. Fuel, 2016, 172, 284-292.	3.4	65

#	Article	IF	Citations
37	A Combined Experimental and Numerical Study of Laminar and Turbulent Non-piloted Oxy-fuel Jet Flames Using a Direct Comparison of the Rayleigh Signal. Flow, Turbulence and Combustion, 2016, 97, 231-262.	1.4	8
38	Temperature Imaging in Liquids using ZnO Thermographic Phosphor Particles. , 2016, , .		0
39	Shifted vibrational CARS thermometry in a sooting flame using a Raman crystal as narrowband light source. , 2016, , .		0
40	Analysis of flow boiling heat transfer in narrow annular gaps applying the design of experiments method. Advances in Mechanical Engineering, 2015, 7, 168781401558454.	0.8	6
41	Characterisation of the luminescence properties of BAM:Eu2+ particles as a tracer for thermographic particle image velocimetry. Applied Physics B: Lasers and Optics, 2015, 121, 495-509.	1.1	39
42	Thermographic laser Doppler velocimetry. Optics Letters, 2015, 40, 4759.	1.7	22
43	A detailed characterization of BaMgAl10O17:Eu phosphor as a thermal history sensor for harsh environments. Sensors and Actuators A: Physical, 2015, 234, 339-345.	2.0	28
44	On-Line Temperature Measurement Inside a Thermal Barrier Sensor Coating During Engine Operation. Journal of Turbomachinery, 2015, 137, .	0.9	8
45	Time-resolved temperature measurements for inert and reactive particles in explosive atmospheres. Proceedings of the Combustion Institute, 2015, 35, 2067-2074.	2.4	15
46	On the alignment of fluid-dynamic principal strain-rates with the 3D flamelet-normal in a premixed turbulent V-flame. Proceedings of the Combustion Institute, 2015, 35, 1269-1276.	2.4	23
47	Thermal radiation from vapour cloud explosions. Chemical Engineering Research and Design, 2015, 94, 517-527.	2.7	19
48	The structure of turbulent flames in fractal- and regular-grid-generated turbulence. Combustion and Flame, 2015, 162, 3379-3393.	2.8	24
49	On the characterisation of tracer particles for thermographic particle image velocimetry. Applied Physics B: Lasers and Optics, 2015, 118, 393-399.	1.1	31
50	Reusable Thermal History Sensing via Oxidation of a Divalent Rare Earth Ion-Based Phosphor Synthesized by the Solâ€"Gel Process. Heat Transfer Engineering, 2015, 36, 1275-1281.	1.2	11
51	Development of a sensitive experimental set-up for LIF fuel wall film measurements in a pressure vessel. Experiments in Fluids, 2015, 56, 1.	1.1	54
52	High-precision flow temperature imaging using ZnO thermographic phosphor tracer particles. Optics Express, 2015, 23, 19453.	1.7	54
53	Temperature Sensing inside Thermal Barrier Coatings using Phosphor Thermometry. , 2014, , .		5
54	Thermographic Particle Image Velocimetry. , 2014, , .		0

#	Article	IF	Citations
55	Needle geometry, target migration and substrate interactions in high resolution. , 2014, 2014, 852-5.		2
56	A reusable thermal history sensor based on the oxidation of a divalent rare earth ion based phosphor synthesized by the solgel process. , 2014, , .		0
57	Highly resolved strain imaging during needle insertion: Results with a novel biologically inspired device. Journal of the Mechanical Behavior of Biomedical Materials, 2014, 30, 50-60.	1.5	29
58	High-speed planar thermometry and velocimetry using thermographic phosphor particles. Applied Physics B: Lasers and Optics, 2013, 111, 155-160.	1.1	107
59	Laser induced phosphorescence imaging for the investigation of evaporating liquid flows. Experiments in Fluids, 2013, 54, 1.	1.1	46
60	Turbulent premixed flames on fractal-grid-generated turbulence. Fluid Dynamics Research, 2013, 45, 061404.	0.6	16
61	Ignition of fuel/air mixtures by radiatively heated particles. Proceedings of the Combustion Institute, 2013, 34, 2065-2072.	2.4	26
62	Three-dimensional flame displacement speed and flame front curvature measurements using quad-plane PIV. Combustion and Flame, 2013, 160, 2757-2769.	2.8	39
63	Thermographic Particle Image Velocimetry. , 2013, , .		0
64	Laser Thermometry Techniques for Combustion Diagnostics. , 2012, , .		0
65	Simultaneous temperature, mixture fraction and velocity imaging in turbulent flows using thermographic phosphor tracer particles. Optics Express, 2012, 20, 22118.	1.7	98
66	Tissue deformation analysis using a laser based digital image correlation technique. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 6, 159-165.	1.5	11
67	Laser Induced Fluorescence for Quantitative Temperature and Concentration Measurements in Internal Combustion Engines. , 2011, , .		0
68	An external Raman laser for combustion diagnostics. Combustion and Flame, 2011, 158, 1905-1907.	2.8	15
69	A-priori testing of an eddy viscosity model for the density-weighted subgrid scale stress tensor in turbulent premixed flames. Experiments in Fluids, 2010, 49, 839-851.	1.1	10
70	Technical Feasibility of Electric Field Control for Turbulent Premixed Flames. Chemical Engineering and Technology, 2010, 33, 647-653.	0.9	5
71	Multi-species detection with dual-pump-CARS: Possibilities and limitations. Physics Procedia, 2010, 5, 703-712.	1.2	1
72	Acetone laser-induced fluorescence behavior for the simultaneous quantification of temperature and residual gas distribution in fired spark-ignition engines. Applied Optics, 2010, 49, 37.	2.1	50

#	Article	IF	Citations
73	Simultaneous Quantitative Measurements of Temperature and Residual Gas Fields Inside a Fired SI-Engine Using Acetone Laser-Induced Fluorescence. , 2009, , .		5
74	Technisches Anwendungspotenzial elektrischer Felder zur Steuerung turbulenter vorgemischter Flammen. Chemie-Ingenieur-Technik, 2009, 81, 1631-1638.	0.4	0
75	Direct evaluation of the subgrid scale scalar flux in turbulent premixed flames with conditioned dual-plane stereo PIV. Proceedings of the Combustion Institute, 2009, 32, 1723-1730.	2.4	33
76	Non-intrusive gas-phase temperature measurements inside a porous burner using dual-pump CARS. Proceedings of the Combustion Institute, 2009, 32, 3123-3129.	2.4	45
77	Validation experiments for spatially resolved one-dimensional emission spectroscopy temperature measurements by dual-pump CARS in a sooting flame. Proceedings of the Combustion Institute, 2009, 32, 745-752.	2.4	17
78	High resolution dual-plane stereo-PIV for validation of subgrid scale models in large-eddy simulations of turbulent premixed flames. Combustion and Flame, 2009, 156, 1552-1564.	2.8	33
79	Experimental Determination of the Sub-grid Scale Scalar Flux in a Non-Reacting Jet-Flow. Flow, Turbulence and Combustion, 2008, 81, 205-219.	1.4	12
80	Flame front detection and characterization using conditioned particle image velocimetry (CPIV). Optics Express, 2007, 15, 15444.	1.7	78
81	Characterization of a Combined CARS and Interferometric Rayleigh Scattering System. , 2007, , .		7
82	Development of Supersonic Combustion Experiments for CFD Modeling. , 2007, , .		7
83	DETAILED 2-D NUMERICAL SIMULATIONS OF RICH, PREMIXED LAMINAR METHANE FLAMES FOR CO CONCENTRATIONS AND TEMPERATURE. Combustion Science and Technology, 2007, 179, 1797-1822.	1.2	0
84	Locally Resolved Measurement of Gas-Phase Temperature and EGR-Ratio in an HCCI-Engine and Their Influence on Combustion Timing. , 2007, , .		4
85	Numerical and experimental study of the vaporization cooling in gasoline direct injection sprays. Proceedings of the Combustion Institute, 2007, 31, 3067-3073.	2.4	18
86	Combined coherent anti-Stokes Raman spectroscopy and linear Raman spectroscopy for simultaneous temperature and multiple species measurements. Optics Letters, 2006, 31, 1908.	1.7	39
87	Application of a beam homogenizer to planar laser diagnostics. Optics Express, 2006, 14, 10171.	1.7	62
88	Simultaneous temperature and exhaust-gas recirculation-measurements in a homogeneous charge-compression ignition engine by use of pure rotational coherent anti-Stokes Raman spectroscopy. Applied Optics, 2006, 45, 3646.	2.1	45
89	Laser-induced fluorescence of ketones at elevated temperatures for pressures up to 20 bars by using a 248 nm excitation laser wavelength: experiments and model improvements. Applied Optics, 2006, 45, 4982.	2.1	40
90	Investigation of the combustion process in an auxiliary heating system using dual-pump CARS. Journal of Raman Spectroscopy, 2006, 37, 633-640.	1.2	31

#	Article	IF	Citations
91	Linewidth modelling of C2H2ï£¿N2 mixtures tested by rotational CARS measurements. Journal of Raman Spectroscopy, 2006, 37, 647-654.	1.2	40
92	Identification of spatial averaging effects in vibrational CARS spectra. Journal of Raman Spectroscopy, 2006, 37, 641-646.	1.2	28
93	LOCALLY RESOLVED INVESTIGATION OF THE VAPORIZATION OF GDI SPRAYS APPLYING DIFFERENT LASER TECHNIQUES. , 2006, 16, 319-330.		20
94	Interference effects of C2-radicals in nitrogen vibrational CARS thermometry using a frequency-doubled Nd:YAG laser. Journal of Raman Spectroscopy, 2005, 36, 102-108.	1.2	35
95	Determination of the Gas-Phase Temperature in the Vaporizing Spray of a GDI-Injector Using Pure Rotational CARS. , 2004, , .		2
96	TEMPERATURE AND CO CONCENTRATION MEASUREMENTS IN A PARTIALLY PREMIXED CH4/AIR COFLOWING JET FLAME USING COHERENT ANTI-STOKES RAMAN SCATTERING. Combustion Science and Technology, 2004, 176, 1965-1984.	1.2	25
97	Comprehensive Characterization of a Sooting Laminar Methane-Diffusion Flame Using Different Laser Techniques. Chemical Engineering and Technology, 2004, 27, 1150-1156.	0.9	9
98	Gas-phase temperature measurement in the vaporizing spray of a gasoline direct-injection injector by use of pure rotational coherent anti-Stokes Raman scattering. Optics Letters, 2004, 29, 247.	1.7	66
99	Application of an optical pulse stretcher to coherent anti-Stokes Raman spectroscopy. Optics Letters, 2004, 29, 2381.	1.7	30
100	Determination of temperatures and fuel/air ratios in an ethene-air flame by dual-pump CARS. Journal of Raman Spectroscopy, 2003, 34, 946-951.	1.2	63
101	High-pressure pure rotational CARS: comparison of temperature measurements with O2, N2and synthetic air. Journal of Raman Spectroscopy, 2003, 34, 932-939.	1.2	46
102	Dual-pump CARS for the simultaneous detection of N2, O2 and CO in CH4 flames. Journal of Raman Spectroscopy, 2002, 33, 919-924.	1.2	49
103	<title>Analysis of microstructure changes and dynamic processes on rough surfaces using speckle correlation</title>. , 1998, , .		1
104	Laser-Based Measurements of Surface Cooling Following Fuel Spray Impingement. , 0, , .		1
105	The Behavior of Fuel Droplets on a Heated Substrate. , 0, , .		0
106	Measurement of a Direct Water-Gasoline-Emulsion-Injection. , 0, , .		1