Kamel Fezzaa

List of Publications by Year
in descending order

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Version: 2024-02-01

79 papers	4,372 citations	147801 31 h-index	110387 64 g-index
80 all docs	80 docs citations	80 times ranked	3262 citing authors

#	Article	IF	Citations
1	Keyhole threshold and morphology in laser melting revealed by ultrahigh-speed x-ray imaging. Science, 2019, 363, 849-852.	12.6	592
2	Real-time monitoring of laser powder bed fusion process using high-speed X-ray imaging and diffraction. Scientific Reports, 2017, 7, 3602.	3.3	389
3	Critical instability at moving keyhole tip generates porosity in laser melting. Science, 2020, 370, 1080-1086.	12.6	316
4	Transient dynamics of powder spattering in laser powder bed fusion additive manufacturing process revealed by in-situ high-speed high-energy x-ray imaging. Acta Materialia, 2018, 151, 169-180.	7.9	276
5	Ultrafast X-ray study of dense-liquid-jet flow dynamics using structure-tracking velocimetry. Nature Physics, 2008, 4, 305-309.	16.7	166
6	Pore elimination mechanisms during 3D printing of metals. Nature Communications, 2019, 10, 3088.	12.8	158
7	Direct observation of pore formation mechanisms during LPBF additive manufacturing process and high energy density laser welding. International Journal of Machine Tools and Manufacture, 2020, 153, 103555.	13.4	143
8	Ultrafast X-ray imaging of laserâ€“metal additive manufacturing processes. Journal of Synchrotron Radiation, 2018, 25, 1467-1477.	2.4	142
9	Gas gun shock experiments with single-pulse x-ray phase contrast imaging and diffraction at the Advanced Photon Source. Review of Scientific Instruments, 2012, 83, 073903.	1.3	136
10	How Does an Air Film Evolve into a Bubble During Drop Impact?. Physical Review Letters, 2012, 109, 204501.	7.8	115
11	Ultrafast synchrotron X-ray imaging studies of microstructure fragmentation in solidification under ultrasound. Acta Materialia, 2018, 144, 505-515.	7.9	112
12	Size limits the formation of liquid jets during bubble bursting. Nature Communications, 2011, 2, 367.	12.8	106
13	In-situ characterization and quantification of melt pool variation under constant input energy density in laser powder bed fusion additive manufacturing process. Additive Manufacturing, 2019, 28, 600-609.	3.0	103
14	Keyhole fluctuation and pore formation mechanisms during laser powder bed fusion additive manufacturing. Nature Communications, 2022, 13, 1170.	12.8	98
15	Revealing particle-scale powder spreading dynamics in powder-bed-based additive manufacturing process by high-speed x-ray imaging. Scientific Reports, 2018, 8, 15079.	3.3	85
16	High speed synchrotron x-ray phase contrast imaging of dynamic material response to split Hopkinson bar loading. Review of Scientific Instruments, 2013, 84, 025102.	1.3	82
17	Quantifying Mesoscale Neuroanatomy Using X-Ray Microtomography. ENeuro, 2017, 4, ENEURO.0195-17.2017.	1.9	74
18	In-situ full-field mapping of melt flow dynamics in laser metal additive manufacturing. Additive Manufacturing, 2020, 31, 100939.	3.0	69

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19	Anisotropic deformation of extruded magnesium alloy AZ31 under uniaxial compression: A study with simultaneous in situ synchrotron x-ray imaging and diffraction. Acta Materialia, 2016, 120, 86-94.	7.9	56
20	Particle tracking velocimetry using fast x-ray phase-contrast imaging. Applied Physics Letters, 2007, 90, 091919.	3.3	55
21	Dedicated full-field X-ray imaging beamline at Advanced Photon Source. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2007, 582, 77-79.	1.6	52
22	In Situ Analysis of Laser Powder Bed Fusion Using Simultaneous High-Speed Infrared and X-ray Imaging. Jom, 2021, 73, 201-211.	1.9	51
23	Origin and dynamics of vortex rings in drop splashing. Nature Communications, 2015, 6, 8187.	12.8	50
24	Synchrotron imaging of the grasshopper tracheal system: morphological and physiological components of tracheal hypermetry. American Journal of Physiology - Regulatory Integrative and Comparative Physiology, 2009, 297, R1343-R1350.	1.8	44
25	Synchrotron x-ray imaging visualization study of capillary-induced flow and critical heat flux on surfaces with engineered micropillars. Science Advances, 2018, 4, e1701571.	10.3	44
26	Heterogeneity in deformation of granular ceramics under dynamic loading. Scripta Materialia, 2016, 111, 114-118.	5.2	42
27	Orientation-dependent tensile deformation and damage of a T700 carbon fiber/epoxy composite: A synchrotron-based study. Carbon, 2017, 121, 127-133.	10.3	42
28	Note: Dynamic strain field mapping with synchrotron X-ray digital image correlation. Review of Scientific Instruments, 2014, 85, 076101.	1.3	39
29	Transient x-ray diffraction with simultaneous imaging under high strain-rate loading. Review of Scientific Instruments, 2014, 85, 113902.	1.3	35
30	HiSPoD: a program for high-speed polychromatic X-ray diffraction experiments and data analysis on polycrystalline samples. Journal of Synchrotron Radiation, 2016, 23, 1046-1053.	2.4	34
31	Bulk-Explosion-Induced Metal Spattering During Laser Processing. Physical Review X, 2019, 9, .	8.9	34
32	Experimental investigation of internal two-phase flow structures and dynamics of quasi-stable sheet cavitation by fast synchrotron x-ray imaging. Physics of Fluids, 2020, 32, .	4.0	31
33	Fast X-ray imaging of cavitating flows. Experiments in Fluids, 2017, 58, 1.	2.4	28
34	Capture Deformation Twinning in Mg during Shock Compression with Ultrafast Synchrotron X-Ray Diffraction. Physical Review Letters, 2019, 123, 255501.	7.8	28
35	Revealing melt flow instabilities in laser powder bed fusion additive manufacturing of aluminum alloy via in-situ high-speed X-ray imaging. International Journal of Machine Tools and Manufacture, 2022, 175, 103861.	13.4	26
36	Dynamic experiment using IMPULSE at the Advanced Photon Source. Journal of Physics: Conference Series, 2014, 500, 042001.	0.4	25

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37	Nonlinear elasticity and damping govern ultrafast dynamics in click beetles. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	24
38	Dynamic shear localization of a titanium alloy under high-rate tension characterized by x-ray digital image correlation. Materials Characterization, 2018, 137, 58-66.	4.4	23
39	Measurement of the vapor layer under a dynamic Leidenfrost drop. International Journal of Heat and Mass Transfer, 2018, 124, 1163-1171.	4.8	23
40	Simultaneous, single-pulse, synchrotron x-ray imaging and diffraction under gas gun loading. Review of Scientific Instruments, 2016, 87, 053903.	1.3	21
41	Real-time visualization of dynamic fractures in porcine bones and the loading-rate effect on their fracture toughness. Journal of the Mechanics and Physics of Solids, 2019, 131, 358-371.	4.8	21
42	Multiscale measurements on temperature-dependent deformation of a textured magnesium alloy with synchrotron x-ray imaging and diffraction. Acta Materialia, 2017, 132, 389-394.	7.9	20
43	Fracture mechanisms of glass particles under dynamic compression. International Journal of Impact Engineering, 2017, 106, 146-154.	5.0	20
44	Simultaneous multiscale measurements on dynamic deformation of a magnesium alloy with synchrotron x-ray imaging and diffraction. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2017, 701, 143-148.	5.6	18
45	Resolving Detonation Nanodiamond Size Evolution and Morphology at Sub-Microsecond Timescales during High-Explosive Detonations. Journal of Physical Chemistry C, 2019, 123, 19153-19164.	3.1	18
46	High-speed Synchrotron X-ray Imaging of Laser Powder Bed Fusion Process. Synchrotron Radiation News, 2019, 32, 4-8.	0.8	17
47	Visualization of dynamic fiber-matrix interfacial shear debonding. Journal of Materials Science, 2018, 53, 5845-5859.	3.7	15
48	Transient dynamics in drop impact on a superheated surface. Physical Review Fluids, 2018, 3, .	2.5	15
49	Real-time visualization of impact damage in monolithic silicon carbide and fibrous silicon carbide ceramic composite. International Journal of Impact Engineering, 2019, 129, 168-179.	5.0	14
50	Real-time damage characterization for GFRCs using high-speed synchrotron X-ray phase contrast imaging. Composites Part B: Engineering, 2021, 207, 108565.	12.0	14
51	Microbubble dynamics and heat transfer in boiling droplets. International Journal of Heat and Mass Transfer, 2021, 176, 121413.	4.8	14
52	Ultrafast synchrotron X-ray imaging and multiphysics modelling of liquid phase fatigue exfoliation of graphite under ultrasound. Carbon, 2022, 186, 227-237.	10.3	14
53	Drop impact on hot plates: contact times, lift-off and the lamella rupture. Soft Matter, 2020, 16, 7935-7949.	2.7	13
54	Detonation-induced transformation of graphite to hexagonal diamond. Physical Review B, 2020, 102, .	3.2	13

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55	In-Situ Characterization of Pore Formation Dynamics in Pulsed Wave Laser Powder Bed Fusion. Materials, 2021, 14, 2936.	2.9	13
56	High-speed X-ray visualization of dynamic crack initiation and propagation in bone. Acta Biomaterialia, 2019, 90, 278-286.	8.3	11
57	A three-dimensional thalamocortical dataset for characterizing brain heterogeneity. Scientific Data, 2020, 7, 358.	5.3	11
58	Direct observation on supersonic microprojectile penetration of carbon fiber composites with ultrafast synchrotron X-ray phase contrast imaging. Carbon, 2021, 172, 781-790.	10.3	11
59	Strain rate effects on the mechanical behavior of porous titanium with different pore sizes. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 821, 141593.	5.6	11
60	Downward jetting of a dynamic Leidenfrost drop. Physical Review Fluids, 2020, 5, .	2.5	11
61	High-speed X-ray imaging of the Leidenfrost collapse. Scientific Reports, 2019, 9, 1598.	3.3	10
62	Ultrafast X-Ray Diffraction Visualization of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>B</mml:mi><mml:mn>1</mml:mn><mml:mtext>â^'</mml:mtext><mml:mi>B</mml:mi><mml:m Phase Transition in KCl under Shock Compression. Physical Review Letters, 2021, 127, 045702.	7.8	10
63	Rate effects on fiberâ€“matrix interfacial transverse debonding behavior. Journal of Composite Materials, 2020, 54, 501-517.	2.4	9
64	In situ characterization of foreign object damage (FOD) in environmentalâ€barrierâ€coated silicon carbide (SiC) ceramic. Journal of the American Ceramic Society, 2020, 103, 4586-4601.	3.8	9
65	Mitigating keyhole pore formation by nanoparticles during laser powder bed fusion additive manufacturing. Additive Manufacturing Letters, 2022, 3, 100068.	2.1	8
66	Effects of Particle Size Distribution with Efficient Packing on Powder Flowability and Selective Laser Melting Process. Materials, 2022, 15, 705.	2.9	7
67	Boiling Transitions During Droplet Contact on Superheated Nano/Micro-Structured Surfaces. ACS Applied Materials & Interfaces, 2022, 14, 15774-15783.	8.0	7
68	Dynamic fracture of glass fiber-reinforced ductile polymer matrix composites and loading rate effect. Composites Part B: Engineering, 2022, 235, 109754.	12.0	7
69	Uncertainties Induced by Processing Parameter Variation in Selective Laser Melting of Ti6Al4V Revealed by In-Situ X-ray Imaging. Materials, 2022, 15, 530.	2.9	6
70	Rate-dependent deformation and Poissonâ€™s effect in porous titanium. Materials Letters, 2019, 245, 134-137.	2.6	5
71	High-speed synchrotron X-ray phase-contrast imaging for evaluating microscale damage mechanisms and tracking cracking behaviors inside cross-ply GFRCs. Composites Science and Technology, 2021, 210, 108814.	7.8	5
72	An instrument for in situ characterization of powder spreading dynamics in powder-bed-based additive manufacturing processes. Review of Scientific Instruments, 2022, 93, 043707.	1.3	5

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73	Rate-dependent phase transition of high density polyethylene. Materialia, 2019, 6, 100274.	2.7	4
74	Ultrafast x-ray imaging of pulsed plasmas in water. Physical Review Research, 2021, 3, .	3.6	4
75	Time-Resolved Geometric Feature Tracking Elucidates Laser-Induced Keyhole Dynamics. Integrating Materials and Manufacturing Innovation, 2021, 10, 677-688.	2.6	4
76	Impact-induced twinning in a magnesium alloy under different stress conditions. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 2021, 818, 141360.	5.6	3
77	Physiological responses to gravity in an insect. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 2180-2186.	7.1	2
78	High-throughput, in situ imaging of multi-layer powder-blown directed energy deposition with angled nozzle. Review of Scientific Instruments, 2022, 93, 023701.	1.3	1
79	Multiscale dynamic experiments on fiber-reinforced composites with damage assessment using high-speed synchrotron X-ray phase-contrast imaging. NDT and E International, 2022, 129, 102636.	3.7	1