

Zhen Xu

List of Publications by Year in descending order

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125
papers

5,106
citations

81839

39
h-index

98753

67
g-index

125
all docs

125
docs citations

125
times ranked

1623
citing authors

#	ARTICLE	IF	CITATIONS
1	Controlled Ultrasound Tissue Erosion. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2004, 51, 726-736.	1.7	269
2	Probability of Cavitation for Single Ultrasound Pulses Applied to Tissues and Tissue-Mimicking Materials. Ultrasound in Medicine and Biology, 2013, 39, 449-465.	0.7	240
3	Histotripsy methods in mechanical disintegration of tissue: Towards clinical applications. International Journal of Hyperthermia, 2015, 31, 145-162.	1.1	216
4	Noninvasive Thrombolysis Using Pulsed Ultrasound Cavitation Therapy “ Histotripsy. Ultrasound in Medicine and Biology, 2009, 35, 1982-1994.	0.7	203
5	Controlled ultrasound tissue erosion: The role of dynamic interaction between insonation and microbubble activity. Journal of the Acoustical Society of America, 2005, 117, 424-435.	0.5	177
6	Noninvasive Treatment of Deep Venous Thrombosis Using Pulsed Ultrasound Cavitation Therapy (Histotripsy) in a Porcine Model. Journal of Vascular and Interventional Radiology, 2011, 22, 369-377.	0.2	142
7	Image-Guided Non-Invasive Ultrasound Liver Ablation Using Histotripsy: Feasibility Study in an In Vivo Porcine Model. Ultrasound in Medicine and Biology, 2013, 39, 1398-1409.	0.7	134
8	Effects of Ultrasound Frequency and Tissue Stiffness on the Histotripsy Intrinsic Threshold for Cavitation. Ultrasound in Medicine and Biology, 2015, 41, 1651-1667.	0.7	128
9	Histotripsy: the first noninvasive, non-ionizing, non-thermal ablation technique based on ultrasound. International Journal of Hyperthermia, 2021, 38, 561-575.	1.1	122
10	Histotripsy beyond the intrinsic cavitation threshold using very short ultrasound pulses: microtriopsy. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2014, 61, 251-265.	1.7	120
11	Effects of tissue mechanical properties on susceptibility to histotripsy-induced tissue damage. Physics in Medicine and Biology, 2014, 59, 253-270.	1.6	114
12	Effects of acoustic parameters on bubble cloud dynamics in ultrasound tissue erosion (histotripsy). Journal of the Acoustical Society of America, 2007, 122, 229-236.	0.5	109
13	Noninvasive Creation of an Atrial Septal Defect by Histotripsy in a Canine Model. Circulation, 2010, 121, 742-749.	1.6	108
14	A Tissue Phantom for Visualization and Measurement of Ultrasound-Induced Cavitation Damage. Ultrasound in Medicine and Biology, 2010, 36, 2132-2143.	0.7	105
15	Histotripsy-induced cavitation cloud initiation thresholds in tissues of different mechanical properties. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2014, 61, 341-352.	1.7	102
16	An Efficient Treatment Strategy for Histotripsy by Removing Cavitation Memory. Ultrasound in Medicine and Biology, 2012, 38, 753-766.	0.7	100
17	High Speed Imaging of Bubble Clouds Generated in Pulsed Ultrasound Cavitation Therapy - Histotripsy. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2007, 54, 2091-2101.	1.7	99
18	Non-thermal histotripsy tumor ablation promotes abscopal immune responses that enhance cancer immunotherapy. , 2020, 8, e000200.		99

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19	Effects of tissue stiffness, ultrasound frequency, and pressure on histotripsy-induced cavitation bubble behavior. <i>Physics in Medicine and Biology</i> , 2015, 60, 2271-2292.	1.6	95
20	Investigation of intensity thresholds for ultrasound tissue erosion. <i>Ultrasound in Medicine and Biology</i> , 2005, 31, 1673-1682.	0.7	89
21	Focused ultrasound: tumour ablation and its potential to enhance immunological therapy to cancer. <i>British Journal of Radiology</i> , 2018, 91, 20170641.	1.0	84
22	Visualizing the Histotripsy Process: Bubble Clouds—Cancer Cell Interactions in a Tissue-Mimicking Environment. <i>Ultrasound in Medicine and Biology</i> , 2016, 42, 2466-2477.	0.7	82
23	Evolution of bubble clouds induced by pulsed cavitation ultrasound therapy - Histotripsy. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2008, 55, 1122-1132.	1.7	78
24	Nanodroplet-Mediated Histotripsy for Image-guided Targeted Ultrasound Cell Ablation. <i>Theranostics</i> , 2013, 3, 851-864.	4.6	78
25	Histotripsy of the Prostate: Dose Effects in a Chronic Canine Model. <i>Urology</i> , 2009, 74, 932-937.	0.5	75
26	Quantitative ultrasound backscatter for pulsed cavitation ultrasound therapy-histotripsy. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2009, 56, 995-1005.	1.7	71
27	Optical and acoustic monitoring of bubble cloud dynamics at a tissue-fluid interface in ultrasound tissue erosion. <i>Journal of the Acoustical Society of America</i> , 2007, 121, 2421-2430.	0.5	70
28	Histotripsy Fractionation of Prostate Tissue: Local Effects and Systemic Response in a Canine Model. <i>Journal of Urology</i> , 2011, 185, 1484-1489.	0.2	63
29	Size Measurement of Tissue Debris Particles Generated from Pulsed Ultrasound Cavitation Therapy “Histotripsy. <i>Ultrasound in Medicine and Biology</i> , 2009, 35, 245-255.	0.7	62
30	Noninvasive thrombolysis using histotripsy beyond the intrinsic threshold (microtripsy). <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2015, 62, 1342-1355.	1.7	53
31	Predicting Tissue Susceptibility to Mechanical Cavitation Damage in Therapeutic Ultrasound. <i>Ultrasound in Medicine and Biology</i> , 2017, 43, 1421-1440.	0.7	50
32	Histotripsy Thrombolysis on Retracted Clots. <i>Ultrasound in Medicine and Biology</i> , 2016, 42, 1903-1918.	0.7	49
33	Non-Invasive Ultrasound Liver Ablation Using Histotripsy: Chronic Study in an In Vivo Rodent Model. <i>Ultrasound in Medicine and Biology</i> , 2016, 42, 1890-1902.	0.7	47
34	A new strategy to enhance cavitation tissue erosion using a high-intensity, initiating sequence. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2006, 53, 1412-1424.	1.7	46
35	Rapid prototyping fabrication of focused ultrasound transducers. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2014, 61, 1559-1574.	1.7	45
36	Non-Invasive Thrombolysis Using Microtripsy in a Porcine Deep Vein Thrombosis Model. <i>Ultrasound in Medicine and Biology</i> , 2017, 43, 1378-1390.	0.7	45

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37	Non-Invasive Liver Ablation Using Histotripsy: Preclinical Safety Study in an In Vivo Porcine Model. <i>Ultrasound in Medicine and Biology</i> , 2017, 43, 1237-1251.	0.7	45
38	Targeted Lesion Generation Through the Skull Without Aberration Correction Using Histotripsy. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2016, 63, 671-682.	1.7	44
39	Therapeutic ultrasound to noninvasively create intracardiac communications in an intact animal model. <i>Catheterization and Cardiovascular Interventions</i> , 2011, 77, 580-588.	0.7	43
40	In vivo histotripsy brain treatment. <i>Journal of Neurosurgery</i> , 2019, 131, 1331-1338.	0.9	43
41	Effects of f_0 -number on the histotripsy intrinsic threshold and cavitation bubble cloud behavior. <i>Physics in Medicine and Biology</i> , 2017, 62, 1269-1290.	1.6	42
42	Polyvinyl chloride as a multimodal tissue-mimicking material with tuned mechanical and medical imaging properties. <i>Medical Physics</i> , 2016, 43, 5577-5592.	1.6	41
43	Modeling tissue-selective cavitation damage. <i>Physics in Medicine and Biology</i> , 2019, 64, 225001.	1.6	41
44	Nanodroplet-mediated catheter-directed sonothrombolysis of retracted blood clots. <i>Microsystems and Nanoengineering</i> , 2021, 7, 3.	3.4	41
45	Effects of Temperature on the Histotripsy Intrinsic Threshold for Cavitation. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2016, 63, 1064-1077.	1.7	39
46	Effects of Ultrasound Frequency on Nanodroplet-Mediated Histotripsy. <i>Ultrasound in Medicine and Biology</i> , 2015, 41, 2135-2147.	0.7	38
47	A Comparison of Sonothrombolysis in Aged Clots between Low-Boiling-Point Phase-Change Nanodroplets and Microbubbles of the Same Composition. <i>Ultrasound in Medicine and Biology</i> , 2020, 46, 3059-3068.	0.7	38
48	Transcranial histotripsy therapy: a feasibility study. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2014, 61, 582-593.	1.7	37
49	Non-invasive, Rapid Ablation of Tissue Volume Using Histotripsy. <i>Ultrasound in Medicine and Biology</i> , 2017, 43, 2834-2847.	0.7	32
50	Prostate Histotripsy in an Anticoagulated Model. <i>Urology</i> , 2010, 75, 207-211.	0.5	30
51	Noninvasive thrombolysis using microtripsy: a parameter study. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2015, 62, 2092-2105.	1.7	30
52	Dual-beam histotripsy: a low-frequency pump enabling a high-frequency probe for precise lesion formation. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2014, 61, 325-340.	1.7	29
53	Comparative study of the dynamics of laser and acoustically generated bubbles in viscoelastic media. <i>Physical Review E</i> , 2019, 99, 043103.	0.8	29
54	Effects of Histotripsy on Local Tumor Progression in an <i>in vivo</i> Orthotopic Rodent Liver Tumor Model. <i>BME Frontiers</i> , 2020, 2020, .	2.2	28

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55	The role of positive and negative pressure on cavitation nucleation in nanodroplet-mediated histotripsy. <i>Physics in Medicine and Biology</i> , 2016, 61, 663-682.	1.6	27
56	Effect of Frequency and Focal Spacing on Transcranial Histotripsy Clot Liquefaction, Using Electronic Focal Steering. <i>Ultrasound in Medicine and Biology</i> , 2017, 43, 2302-2317.	0.7	27
57	Real-Time Feedback of Histotripsy Thrombolysis Using Bubble-Induced Color Doppler. <i>Ultrasound in Medicine and Biology</i> , 2015, 41, 1386-1401.	0.7	26
58	Robotically Assisted Sonic Therapy (RAST) for Noninvasive Hepatic Ablation in a Porcine Model: Mitigation of Body Wall Damage with a Modified Pulse Sequence. <i>CardioVascular and Interventional Radiology</i> , 2019, 42, 1016-1023.	0.9	26
59	Noninvasive Ablation of Prostate Cancer Spheroids Using Acoustically-Activated Nanodroplets. <i>Molecular Pharmaceutics</i> , 2016, 13, 4054-4065.	2.3	25
60	Real-Time Transcranial Histotripsy Treatment Localization and Mapping Using Acoustic Cavitation Emission Feedback. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2020, 67, 1178-1191.	1.7	25
61	Robotically-Assisted Sonic Therapy for Renal Ablation in a Live Porcine Model: Initial Preclinical Results. <i>Journal of Vascular and Interventional Radiology</i> , 2019, 30, 1293-1302.	0.2	24
62	Histotripsy Clot Liquefaction in a Porcine Intracerebral Hemorrhage Model. <i>Neurosurgery</i> , 2020, 86, 429-436.	0.6	24
63	Histotripsy for Non-Invasive Ablation of Hepatocellular Carcinoma (HCC) Tumor in a Subcutaneous Xenograft Murine Model. , 2018, 2018, 6064-6067.		23
64	Dual-Frequency Intravascular Sonothrombolysis: An <i>In Vitro</i> Study. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2021, 68, 3599-3607.	1.7	23
65	Effects of Droplet Composition on Nanodroplet-Mediated Histotripsy. <i>Ultrasound in Medicine and Biology</i> , 2016, 42, 931-946.	0.7	22
66	Development of Nanodroplets for Histotripsy-Mediated Cell Ablation. <i>Molecular Pharmaceutics</i> , 2014, 11, 3684-3695.	2.3	20
67	Single-bubble dynamics in histotripsy and high-amplitude ultrasound: Modeling and validation. <i>Physics in Medicine and Biology</i> , 2020, 65, 225014.	1.6	20
68	Effects of Thermal Preconditioning on Tissue Susceptibility to Histotripsy. <i>Ultrasound in Medicine and Biology</i> , 2015, 41, 2938-2954.	0.7	19
69	Soft-Tissue Aberration Correction for Histotripsy. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2018, 65, 2073-2085.	1.7	19
70	Examining the Influence of Low-Dose Tissue Plasminogen Activator on Microbubble-Mediated Forward-Viewing Intravascular Sonothrombolysis. <i>Ultrasound in Medicine and Biology</i> , 2020, 46, 1698-1706.	0.7	19
71	Transcranial MR-Guided Histotripsy System. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2021, 68, 2917-2929.	1.7	19
72	Impact of Histotripsy on Development of Intrahepatic Metastases in a Rodent Liver Tumor Model. <i>Cancers</i> , 2022, 14, 1612.	1.7	19

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73	Acoustic cavitation rheometry. <i>Soft Matter</i> , 2021, 17, 2931-2941.	1.2	17
74	Integrated Histotripsy and Bubble Coalescence Transducer for Thrombolysis. <i>Ultrasound in Medicine and Biology</i> , 2018, 44, 2697-2709.	0.7	16
75	Safety Evaluation of a Forward-Viewing Intravascular Transducer for Sonothrombolysis: An in Vitro and ex Vivo Study. <i>Ultrasound in Medicine and Biology</i> , 2021, 47, 3231-3239.	0.7	15
76	Catheter Hydrophone Aberration Correction for Transcranial Histotripsy Treatment of Intracerebral Hemorrhage: Proof-of-Concept. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2017, 64, 1684-1697.	1.7	15
77	The role of compressional pressure in the formation of dense bubble clouds in histotripsy. , 2009, , .		14
78	Histotripsy Ablations in a Porcine Liver Model: Feasibility of Respiratory Motion Compensation by Alteration of the Ablation Zone Prescription Shape. <i>CardioVascular and Interventional Radiology</i> , 2020, 43, 1695-1701.	0.9	13
79	Transcranial Magnetic Resonance-Guided Histotripsy for Brain Surgery: Pre-clinical Investigation. <i>Ultrasound in Medicine and Biology</i> , 2022, 48, 98-110.	0.7	13
80	Bubble-Induced Color Doppler Feedback Correlates with Histotripsy-Induced Destruction of Structural Components in Liver Tissue. <i>Ultrasound in Medicine and Biology</i> , 2018, 44, 602-612.	0.7	12
81	Integrated Histotripsy and Bubble Coalescence Transducer for Rapid Tissue Ablation. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2018, 65, 1822-1831.	1.7	12
82	Hemodynamic and Hematologic Effects of Histotripsy of Free-Flowing Blood: Implications for Ultrasound-Mediated Thrombolysis. <i>Journal of Vascular and Interventional Radiology</i> , 2015, 26, 1559-1565.	0.2	11
83	Why Are Short Pulses More Efficient in Tissue Erosion Using Pulsed Cavitation Ultrasound Therapy (Histotripsy)? , 2010, , .		10
84	Two-step aberration correction: application to transcranial histotripsy. <i>Physics in Medicine and Biology</i> , 2022, 67, 125009.	1.6	9
85	In-vivo study of non-invasive thrombolysis by histotripsy in a porcine model. , 2009, , .		8
86	Histotripsy Lesion Formation Using an Ultrasound Imaging Probe Enabled by a Low-Frequency Pump Transducer. <i>Ultrasound in Medicine and Biology</i> , 2015, 41, 2148-2160.	0.7	7
87	Transcostal Histotripsy Ablation in an In Vivo Acute Hepatic Porcine Model. <i>CardioVascular and Interventional Radiology</i> , 2021, 44, 1643-1650.	0.9	7
88	An Analysis of Sonothrombolysis and Cavitation for Retracted and Unretracted Clots Using Microbubbles Versus Low-Boiling-Point Nanodroplets. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2022, 69, 711-719.	1.7	7
89	Enhanced Shock Scattering Histotripsy With Pseudomonopolar Ultrasound Pulses. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2019, 66, 1185-1197.	1.7	6
90	Stereotactic Transcranial Focused Ultrasound Targeting System for Murine Brain Models. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2021, 68, 154-163.	1.7	6

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91	Non-invasive thrombolysis induced by histotripsy pulsed cavitation ultrasound therapy. , 2008, , .		5
92	The effect of histotripsy on tissues with different mechanical properties. , 2011, , .		5
93	A cost-effective, multi-flash, “ghost”-imaging technique for high temporal and spatial resolution imaging of cavitation using “still-frame”-cameras. Journal of the Acoustical Society of America, 2020, 147, 1339-1343.	0.5	5
94	Endocavity Histotripsy for Efficient Tissue Ablation—Transducer Design and Characterization. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2021, 68, 2896-2905.	1.7	5
95	Optical and Acoustic Monitoring of Bubble Dynamics at a Tissue-fluid Interface in Ultrasound Tissue Erosion. AIP Conference Proceedings, 2006, , .	0.3	4
96	Non-invasive fetal therapy using histotripsy: Feasibility study in the sheep model. , 2009, , .		4
97	Coalescence of residual histotripsy cavitation nuclei using low-gain regions of the therapy beam during electronic focal steering. Physics in Medicine and Biology, 2018, 63, 225010.	1.6	4
98	Histotripsy: Potential Noninvasive Management of Intracerebral Hemorrhage. World Neurosurgery, 2020, 139, 614-615.	0.7	4
99	In Vivo Porcine Aged Deep Vein Thrombosis Model for Testing Ultrasound-based Thrombolysis Techniques. Ultrasound in Medicine and Biology, 2021, 47, 3447-3457.	0.7	4
100	A Tissue Phantom for Evaluation of Mechanical Damage Caused by Cavitation. , 2010, , .		3
101	Real-time elastography-based monitoring of histotripsy tissue fractionation using color Doppler. , 2012, , .		3
102	Intravascular Sonothrombolysis, in vitro, Using a Small Aperture, Forward-Viewing, Sub-Megahertz Transducer to Enhance tPA Treatment. , 2019, , .		3
103	Dual-Frequency Intravascular Thrombolysis with Miniaturized Forward-Looking Transducers. , 2020, , .		3
104	Performance of a transcranial ultrasound array designed for 4D acoustoelectric brain imaging in humans. , 2017, , .		2
105	Size Measurement of Tissue Debris Generated from Mechanical Tissue Fractionation by Cavitation Pulsed Ultrasound Therapy “ Histotripsy. AIP Conference Proceedings, 2007, , .	0.3	1
106	Active protection in pulse cavitation ultrasound therapy (histotripsy). , 2009, , .		1
107	Real-time motion tracking for non-invasive ultrasound cardiac therapy using histotripsy. , 2011, , .		1
108	Investigation of the mechanism of ARFI-based Color Doppler feedback of histotripsy tissue fractionation. , 2013, , .		1

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109	Notice of Removal: Acoustic cavitation emission feedback to monitor tissue fractionation during histotripsy therapy. , 2017, , .		1
110	Notice of Removal: Rapid liquefaction of blood clots using histotripsy in an in vivo porcine intracerebral hemorrhage (ICH) model. , 2017, , .		1
111	Acoustic Measurements of Nucleus Size Distribution at the Cavitation Threshold. Ultrasound in Medicine and Biology, 2021, 47, 1024-1031.	0.7	1
112	Cavitation-Enhanced High-Pressure Pulsed Sonothrombolysis with Perfluorocarbon Nanodroplets versus Microbubbles in Contracted and Uncontracted Clots. , 2020, , .		1
113	Controlled ultrasound tissue erosion. , 0, , .		0
114	Quantitative image feedback for pulsed cavitation ultrasound therapy- histotripsy. , 2008, , .		0
115	Histotripsy for Pediatric Cardiac Applications: In Vivo Neonatal Pig Model. , 2010, , .		0
116	Ultrasound-induced fluid uptake phenomenon in porcine uterine tissue. , 2010, , .		0
117	Lesion generation through ribs without aberration correction using cavitation therapy. , 2010, , .		0
118	Imaging feedback of histotripsy treatments using ultrasound transient elastography. , 2011, , .		0
119	Ultrasound backscatter spectral analysis provides image feedback for histotripsy tissue fractionation. , 2011, , .		0
120	The effect of acoustic parameters on the Non-Invasive Embolus Trap (NET) using a histotripsy-generated bubble cloud. , 2011, , .		0
121	Trapping of solid particles by cavitation-induced acoustic streaming. , 2011, , .		0
122	Non-invasive fetal therapy using histotripsy: Safety and local impact on fetal development. , 2011, , .		0
123	In-vivo transcostal histotripsy therapy without aberration correction. , 2013, , .		0
124	Notice of Removal: Integrated histotripsy and bubble coalescence transducer for rapid tissue ablation. , 2017, , .		0
125	Intravascular Dual-frequency Ultrasound Transducer Using a Stack Composite. , 2021, , .		0