Donald J Leo

List of Publications by Year in descending order

101 papers	3,140 citations	218592 26 h-index	168321 53 g-index
120 all docs	120 docs citations	120 times ranked	1711 citing authors

#	Article	IF	Citations
1	Ionic liquids as stable solvents for ionic polymer transducers. Sensors and Actuators A: Physical, 2004, 115, 79-90.	2.0	338
2	High-strain ionomericâ€“ionic liquid electroactive actuators. Sensors and Actuators A: Physical, 2006, 126, 173-181.	2.0	222
3	Modeling of electromechanical charge sensing in ionic polymer transducers. Mechanics of Materials, 2004, 36, 421-433.	1.7	180
4	Electromechanical Modeling and Characterization of Ionic Polymer Benders. Journal of Intelligent Material Systems and Structures, 2002, 13, 51-60.	1.4	132
5	Beyond Nafion: Charged Macromolecules Tailored for Performance as Ionic Polymer Transducers. Macromolecules, 2008, 41, 7765-7775.	2.2	124
6	Biomimetic jellyfish-inspired underwater vehicle actuated by ionic polymer metal composite actuators. Smart Materials and Structures, 2012, 21, 094026.	1.8	111
7	A model of charge transport and electromechanical transduction in ionic liquid-swollen Nafion membranes. Polymer, 2006, 47, 6782-6796.	1.8	110
8	Direct assembly process: a novel fabrication technique for large strain ionic polymer transducers. Journal of Materials Science, 2007, 42, 7031-7041.	1.7	110
9	Transport modeling in ionomeric polymer transducers and its relationship to electromechanical coupling. Journal of Applied Physics, 2007, 101, 024912.	1.1	109
10	Electrochemical response in ionic polymer transducers: An experimental and theoretical study. Composites Science and Technology, 2008, 68, 1173-1180.	3.8	103
11	Feedback Control of the Bending Response of Ionic Polymer Actuators. Journal of Intelligent Material Systems and Structures, 2001, 12, 143-155.	1.4	85
12	Regulated Attachment Method for Reconstituting Lipid Bilayers of Prescribed Size within Flexible Substrates. Analytical Chemistry, 2010, 82, 959-966.	3.2	81
13	Hair cell inspired mechanotransduction with a gel-supported, artificial lipid membrane. Soft Matter, 2011, 7, 4644.	1.2	62
14	Effect of Ionic Liquid on Mechanical Properties and Morphology of Zwitterionic Copolymer Membranes. Macromolecules, 2010, 43, 790-796.	2.2	61
15	Single-Walled Carbon Nanotubes â€” Ionic Polymer Electroactive Hybrid Transducers. Journal of Intelligent Material Systems and Structures, 2008, 19, 905-915.	1.4	56
16	Characterization and modeling of extensional and bending actuation in ionomeric polymer transducers. Smart Materials and Structures, 2007, 16, 1348-1360.	1.8	51
17	Thermodynamical Modeling of the Electromechanical Behavior of Ionic Polymer Metal Composites. Journal of Intelligent Material Systems and Structures, 2009, 20, 741-750.	1.4	49
18	High surface area electrodes in ionic polymer transducers: Numerical and experimental investigations of the electro-chemical behavior. Journal of Applied Physics, 2011, 109, .	1.1	46

#	Article	IF	Citations
19	Activation of bacterial channel MscL in mechanically stimulated droplet interface bilayers. Scientific Reports, 2015, 5, 13726.	1.6	43
20	Bilayer Formation between Lipid-Encased Hydrogels Contained in Solid Substrates. ACS Applied Materials & Interfaces, 2010, 2, 3654-3663.	4.0	35
21	Electromechanical transduction in multilayer ionic transducers. Smart Materials and Structures, 2004, 13, 1081-1089.	1.8	29
22	Tailored Currentâ€"Voltage Relationships of Droplet-Interface Bilayers Using Biomolecules and External Feedback Control. Journal of Intelligent Material Systems and Structures, 2009, 20, 1233-1247.	1.4	29
23	Modeling the electrical impedance response of ionic polymer transducers. Journal of Applied Physics, 2008, 104, 014512.	1.1	28
24	Membrane-based biomolecular smart materials. Smart Materials and Structures, 2011, 20, 094018.	1.8	28
25	Computational analysis of ionic polymer cluster energetics. Journal of Applied Physics, 2005, 97, 013541.	1.1	27
26	Computational models of ionic transport and electromechanical transduction in ionomeric polymer transducers (Invited Paper). , 2005, , .		21
27	Characterization and Variational Modeling of Ionic Polymer Transducers. Journal of Vibration and Acoustics, Transactions of the ASME, 2007, 129, 113-120.	1.0	21
28	Electrostatic analysis of cluster response to electrical and mechanical loading in ionic polymers with cluster morphology. Smart Materials and Structures, 2004, 13, 323-336.	1.8	20
29	Identification of the Nonlinear Response of Ionic Polymer Actuators using the Volterra Series. JVC/Journal of Vibration and Control, 2005, 11, 519-541.	1.5	20
30	Bioenergetics and mechanical actuation analysis with membrane transport experiments for use in biomimetic nastic structures. Journal of Materials Research, 2006, 21, 2058-2067.	1.2	20
31	Ionomer design for augmented charge transport in novel ionic polymer transducers. Smart Materials and Structures, 2009, 18, 104005.	1.8	19
32	Encapsulating Networks of Droplet Interface Bilayers in a Thermoreversible Organogel. Scientific Reports, 2018, 8, 6494.	1.6	19
33	Oligomeric A₂+ B₃synthesis of highly branched polysulfone ionomers: novel candidates for ionic polymer transducers. Polymer International, 2010, 59, 25-35.	1.6	18
34	Bandwidth Characterization in the Micropositioning of Ionic Polymer Actuators. Journal of Intelligent Material Systems and Structures, 2005, 16, 3-13.	1.4	16
35	Ionic polymer cluster energetics: Computational analysis of pendant chain stiffness and charge imbalance. Journal of Applied Physics, 2005, 97, 123530.	1.1	16
36	Mechanics of Droplet Interface Bilayer â€œUnzippingâ€•Defines the Bandwidth for the Mechanotransduction Response of Reconstituted MscL. Advanced Materials Interfaces, 2017, 4, 1600805.	1.9	16

#	Article	IF	Citations
37	Application of Rotational Isomeric State Theory to Ionic Polymer Stiffness Predictions. Journal of Materials Research, 2005, 20, 2443-2455.	1.2	13
38	Characterization and Modeling of the Nonlinear Response of Ionic Polymer Actuators. JVC/Journal of Vibration and Control, 2008, 14, 1151-1173.	1.5	13
39	Ionic liquids as novel solvents for ionic polymer transducers. , 2004, , .		10
40	Deterministic model of biomolecular networks with stimuli-responsive properties. Journal of Intelligent Material Systems and Structures, 2015, 26, 921-930.	1.4	10
41	Flow field sensing with bio-inspired artificial hair cell arrays. Sensors and Actuators B: Chemical, 2016, 236, 805-814.	4.0	10
42	Effects of electrode morphology on the performance of BPSH and PATS ionic polymer transducers. , 2004, , .		9
43	Design and Development of a Biomimetic Jellyfish Robot That Features Ionic Polymer Metal Composites Actuators. , 2011, , .		8
44	Mechanosensitive Channels Activity in a Droplet Interface Bilayer System. Materials Research Society Symposia Proceedings, 2014, 1621, 171-176.	0.1	7
45	The Use of Active Ionic Polymers in Dynamic Skin Friction Measurements. , 2004, , 667.		6
46	Electrical impedance modeling of ionic polymer transducers. , 2005, 5761, 69.		6
47	Chemoelectrical Energy Conversion of Adenosine Triphosphate using ATPases. Journal of Intelligent Material Systems and Structures, 2010, 21, 201-212.	1.4	6
48	Experimental demonstration of the active area model in extensional ionic polymer transducers. Smart Materials and Structures, 2012, 21, 105034.	1.8	6
49	The voltage-dependence of MscL has dipolar and dielectric contributions and is governed by local intramembrane electric field. Scientific Reports, 2018, 8, 13607.	1.6	6
50	Effects of counter-ion, solvent type, and loading condition on the material response of ionic polymer transducers. , 2004, , .		5
51	Hair cell sensing with encapsulated interface bilayers. Proceedings of SPIE, 2011, , .	0.8	5
52	Multifunctional, Micropipette-based Method for Incorporation And Stimulation of Bacterial Mechanosensitive Ion Channels in Droplet Interface Bilayers. Journal of Visualized Experiments, 2015, , .	0.2	5
53	A skin-inspired soft material with directional mechanosensation. Bioinspiration and Biomimetics, 2021, 16, 046014.	1.5	5
54	Electromechanical modeling of charge sensing in ionic polymers. , 2003, 5053, 13.		4

#	Article	IF	Citations
55	High-Strain Ionomeric-Ionic Liquid Composites via Electrode Tailoring. , 2004, , 145.		4
56	Characterization of the solvent-induced nonlinear response of ionic polymer actuators. , 2005, , .		4
57	Position Control of a Square-plate Ionic Polymer Actuator Using Output Feedback. Journal of Intelligent Material Systems and Structures, 2007, 18, 219-234.	1.4	4
58	Counterion and Diluent Effects on the Response of Ionic Polymer Transducers. Journal of Intelligent Material Systems and Structures, 2007, 18, 677-692.	1.4	4
59	Development of ionic polymer transducers as flow shear stress sensors: effects of electrode architecture. , 2007, , .		4
60	Development of a smartphone-based peanut data logging system. Precision Agriculture, 2021, 22, 1006-1018.	3.1	4
61	Electroactive Polymers Based on Novel Ionomers. , 2003, , .		4
62	Electromechanical Model of an Active Polymer Thin Circular Disk. , 2004, , 171.		3
63	Softening and heating effects in ionic polymer transducers: An experimental investigation. Journal of Intelligent Material Systems and Structures, 2013, 24, 1266-1277.	1.4	3
64	Hybrid Actuation in Coupled Ionic / Conducting Polymer Devices. Materials Research Society Symposia Proceedings, 2003, 785, 821.	0.1	2
65	on the relationship between the electric double layer and actuation in ionomeric polymer transducers. Materials Research Society Symposia Proceedings, 2004, 855, 87.	0.1	2
66	Chemo-electric characterization and modeling of the high surface area electrodes in ionic polymer transducers. , 2007, , .		2
67	High surface area electrodes in ionic polymer transducers: numerical and experimental investigations of the chemo-electric behavior. , 2008, , .		2
68	Optimization of active electrodes for novel ionomer-based ionic polymer transducers. Proceedings of SPIE, 2008, , .	0.8	2
69	Electromechanical performance and membrane stability of novel ionic polymer transducers constructed in the presence of ionic liquids. , 2009, , .		2
70	Formation and Encapsulation of Biomolecular Arrays for Developing Arrays of Membrane-Based Artificial Hair Cell Sensors. , 2011, , .		2
71	Modeling and optimization of IPMC actuator for autonomous jellyfish vehicle (AJV). Proceedings of SPIE, 2011, , .	0.8	2
72	Using cellular energy conversion and storage mechanics for bio-inspired energy harvesting. Proceedings of SPIE, 2013, , .	0.8	2

#	Article	IF	Citations
73	Multi-scale modeling of ion transport in high-strain ionomers with conducting powder electrodes. Journal of Intelligent Material Systems and Structures, 2014, 25, 1196-1210.	1.4	2
74	Modeling of Ion Transport in High Strain Ionomers by Monte Carlo Simulation Compared to Continuum Model. , 2006, , .		2
75	Linear constitutive model of ionic polymer bender transducers. , 2003, 5051, 88.		1
76	Nonlinear identification of ionic polymer actuator systems. , 2004, , .		1
77	<title>A variational model of ionomeric polymer actuators and sensors</title>. , 2005, , .		1
78	Microhydraulic Actuation Using Biological Ion Transporters Reconstituted on Artificial BLM. Materials Research Society Symposia Proceedings, 2006, 944, 1.	0.1	1
79	Dynamic modeling of the nonlinear response of ionic polymer actuators. , 2006, 6166, 182.		1
80	Deformation of bilayer lipid membranes in bioâ€inspired materials and systems. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 4020023-4020024.	0.2	1
81	Forced and free displacement characterization of ionic polymer transducers. , 2009, , .		1
82	Biomolecular material systems with encapsulated interface bilayers. Materials Research Society Symposia Proceedings, 2011, 1301, 267.	0.1	1
83	Formation, encapsulation, and validation of membrane-based artificial hair cell sensors. Proceedings of SPIE, 2012, , .	0.8	1
84	Investigation of Extensional Actuation Strain in Ionomeric Polymer Transducers. , 2005, , .		1
85	Feedback-controlled oscillatory motor using ionic polymer materials. , 2003, , .		0
86	Variational modeling of ionic polymer plate structures. , 2006, , .		0
87	Monte Carlo simulation of ion transport of the high strain ionomer with conducting powder electrodes. , 2007, , .		0
88	A correlation between extensional displacement and architecture of ionic polymer transducers. Proceedings of SPIE, 2008, , .	0.8	0
89	Physical encapsulation and controlled assembly of lipid bilayers within flexible substrates. Proceedings of SPIE, 2010, , .	0.8	0
90	Modeling bilayer systems as electrical networks. Proceedings of SPIE, 2010, , .	0.8	0

#	Article	IF	Citations
91	Encapsulated Interface Bilayers for Durable Biomolecular Materials. , 2010, , .		0
92	Single channel conductance modeling of the peptide alamethicin in synthetically formed bilayers. Proceedings of SPIE, 2011, , .	0.8	0
93	Cell-inspired electroactive polymer materials incorporating biomolecular materials. , 2011, , .		0
94	Bioadhesives. , 2012, , 194-201.		0
95	Bacterial Electrical Conduction. , 2012, , 173-173.		0
96	Biomolecular hydrogel-based lipid bilayer array system. Proceedings of SPIE, 2013, , .	0.8	0
97	Dynamic Characterization of Biomimetic Artificial Hair Cells. , 2013, , .		0
98	Network modeling of membrane-based artificial cellular systems. Proceedings of SPIE, 2013, , .	0.8	0
99	The Gating Mechanism of Mechanosensitive Channels in Droplet Interface Bilayers. Materials Research Society Symposia Proceedings, 2015, 1722, 32.	0.1	0
100	A Design Model for Bending and Extensional Ionic Polymer Transducers. , 2006, , .		0
101	Bioderived Smart Materials. , 2016, , 238-251.		0