

Attilio Alberto Frangi

List of Publications by Year in descending order

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147
papers

2,810
citations

172207

29
h-index

233125

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g-index

161
all docs

161
docs citations

161
times ranked

1544
citing authors

#	ARTICLE	IF	CITATIONS
1	Recent Advances and Emerging Applications of the Boundary Element Method. Applied Mechanics Reviews, 2011, 64, .	4.5	121
2	Mechanical Characterization of Polysilicon Through On-Chip Tensile Tests. Journal of Microelectromechanical Systems, 2004, 13, 200-219.	1.7	119
3	Anchor Losses in AlN Contour Mode Resonators. Journal of Microelectromechanical Systems, 2015, 24, 265-275.	1.7	108
4	A Lagrangian finite element approach for the simulation of water-waves induced by landslides. Computers and Structures, 2011, 89, 1086-1093.	2.4	98
5	Solid damping in micro electro mechanical systems. Meccanica, 2008, 43, 419-428.	1.2	88
6	Finite element modelling of a rotating piezoelectric ultrasonic motor. Ultrasonics, 2005, 43, 747-755.	2.1	73
7	Analysis of anchor and interface losses in piezoelectric MEMS resonators. Sensors and Actuators A: Physical, 2013, 190, 127-135.	2.0	72
8	3D fracture analysis by the symmetric Galerkin BEM. Computational Mechanics, 2002, 28, 220-232.	2.2	68
9	Axis Magnetometers for MEMS Inertial Measurement Units Using an Industrial Process. IEEE Transactions on Industrial Electronics, 2013, 60, 3983-3990.	5.2	68
10	Simulation of the flow of fresh cement suspensions by a Lagrangian finite element approach. Journal of Non-Newtonian Fluid Mechanics, 2010, 165, 1555-1563.	1.0	58
11	Symmetric BE method in two-dimensional elasticity: evaluation of double integrals for curved elements. Computational Mechanics, 1996, 19, 58-68.	2.2	57
12	Validation of PML-based models for the evaluation of anchor dissipation in MEMS resonators. European Journal of Mechanics, A/Solids, 2013, 37, 256-265.	2.1	57
13	Experimental evaluation and numerical modeling of adhesion phenomena in polysilicon MEMS. Meccanica, 2013, 48, 1835-1844.	1.2	56
14	A direct approach for boundary integral equations with high-order singularities. International Journal for Numerical Methods in Engineering, 2000, 49, 871-898.	1.5	50
15	On the identification of rheological properties of cement suspensions: Rheometry, Computational Fluid Dynamics modeling and field test measurements. Cement and Concrete Research, 2012, 42, 1134-1146.	4.6	48
16	Multipole BEM for the evaluation of damping forces on MEMS. Computational Mechanics, 2005, 37, 24-31.	2.2	47
17	On the evaluation of damping in MEMS in the slip-flow regime. International Journal for Numerical Methods in Engineering, 2006, 68, 1031-1051.	1.5	45
18	Reduced order modelling of the non-linear stiffness in MEMS resonators. International Journal of Non-Linear Mechanics, 2019, 116, 211-218.	1.4	43

#	ARTICLE	IF	CITATIONS
19	On the numerical stability of time-domain elastodynamic analyses by BEM. <i>Computer Methods in Applied Mechanics and Engineering</i> , 1999, 173, 403-417.	3.4	38
20	On the application of the BGK kinetic model to the analysis of gas-structure interactions in MEMS. <i>Computers and Structures</i> , 2007, 85, 810-817.	2.4	37
21	Model order reduction based on direct normal form: application to large finite element MEMS structures featuring internal resonance. <i>Nonlinear Dynamics</i> , 2021, 105, 1237-1272.	2.7	36
22	On a deterministic approach for the evaluation of gas damping in inertial MEMS in the free-molecule regime. <i>Sensors and Actuators A: Physical</i> , 2009, 149, 21-28.	2.0	35
23	A fast multipole implementation of the quadrature mixed-velocity traction approach for exterior Stokes flows. <i>Engineering Analysis With Boundary Elements</i> , 2005, 29, 1039-1046.	2.0	34
24	Reduced order models for geometrically nonlinear structures: Assessment of implicit condensation in comparison with invariant manifold approach. <i>European Journal of Mechanics, A/Solids</i> , 2021, 86, 104165.	2.1	33
25	Near Vacuum Gas Damping in MEMS: Simplified Modeling. <i>Journal of Microelectromechanical Systems</i> , 2017, 26, 632-642.	1.7	32
26	Boundary element analysis of Kirchhoff plates with direct evaluation of hypersingular integrals. <i>International Journal for Numerical Methods in Engineering</i> , 1999, 46, 1845-1863.	1.5	31
27	Modelling of spontaneous adhesion phenomena in micro-electro-mechanical systems. <i>European Journal of Mechanics, A/Solids</i> , 2013, 39, 144-152.	2.1	31
28	Parametric Resonance in Electrostatically Actuated Micromirrors. <i>IEEE Transactions on Industrial Electronics</i> , 2017, 64, 1544-1551.	5.2	30
29	"Causal" shape functions in the time domain boundary element method. <i>Computational Mechanics</i> , 2000, 25, 533-541.	2.2	29
30	High order direct parametrisation of invariant manifolds for model order reduction of finite element structures: application to large amplitude vibrations and uncovering of a folding point. <i>Nonlinear Dynamics</i> , 2022, 110, 525-571.	2.7	28
31	A Galerkin symmetric and direct BIE method for Kirchhoff elastic plates: formulation and implementation. <i>International Journal for Numerical Methods in Engineering</i> , 1998, 41, 337-369.	1.5	27
32	Numerical modelling of impact rupture in polysilicon microsystems. <i>Computational Mechanics</i> , 2008, 42, 251-259.	2.2	27
33	A Lagrangian finite element approach for the analysis of fluid-structure interaction problems. <i>International Journal for Numerical Methods in Engineering</i> , 2010, 84, 610-630.	1.5	27
34	Nonlinear Response of PZT-Actuated Resonant Micromirrors. <i>Journal of Microelectromechanical Systems</i> , 2020, 29, 1421-1430.	1.7	27
35	Kinetic Approach to Gas Flows in Microchannels. <i>Nanoscale and Microscale Thermophysical Engineering</i> , 2007, 11, 211-226.	1.4	26
36	Dynamic elastic-plastic analysis by a symmetric Galerkin boundary element method with time-independent kernels. <i>Computer Methods in Applied Mechanics and Engineering</i> , 1999, 171, 281-308.	3.4	25

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37	Mutual 3:1 subharmonic synchronization in a micromachined silicon disk resonator. Applied Physics Letters, 2017, 111, .	1.5	25
38	Reduction of anchor losses by etched slots in aluminum nitride contour mode resonators. , 2013, , .		24
39	Threshold Shock Sensor Based on a Bistable Mechanism: Design, Modeling, and Measurements. Journal of Microelectromechanical Systems, 2015, 24, 2019-2026.	1.7	24
40	Near Vacuum Gas Damping in MEMS: Numerical Modeling and Experimental Validation. Journal of Microelectromechanical Systems, 2016, 25, 890-899.	1.7	24
41	Phase-field modeling of domain evolution in ferroelectric materials in the presence of defects. Smart Materials and Structures, 2019, 28, 035021.	1.8	24
42	Analysis of the Nonlinear Response of Piezo-Micromirrors with the Harmonic Balance Method. Actuators, 2021, 10, 21.	1.2	24
43	Elastodynamics by BEM: a new direct formulation. International Journal for Numerical Methods in Engineering, 1999, 45, 721-740.	1.5	23
44	BEM approaches and simplified kinetic models for the analysis of damping in deformable MEMS. Engineering Analysis With Boundary Elements, 2007, 31, 451-457.	2.0	23
45	Neumann exterior wave propagation problems: computational aspects of 3D energetic Galerkin BEM. Computational Mechanics, 2013, 51, 475-493.	2.2	23
46	An explicit Lagrangian finite element method for free-surface weakly compressible flows. Computational Particle Mechanics, 2017, 4, 357-369.	1.5	23
47	Free Terms and Compatibility Conditions for 3D Hypersingular Boundary Integral Equations. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2001, 81, 651-664.	0.9	22
48	Fracture propagation in 3D by the symmetric Galerkin boundary element method. International Journal of Fracture, 2002, 116, 313-330.	1.1	22
49	Backbone curves, Neimark-Sacker boundaries and appearance of quasi-periodicity in nonlinear oscillators: application to 1:2 internal resonance and frequency combs in MEMS. Meccanica, 2021, 56, 1937-1969.	1.2	22
50	Reduced order modelling and experimental validation of a MEMS gyroscope test-structure exhibiting 1:2 internal resonance. Scientific Reports, 2021, 11, 16390.	1.6	22
51	BEM?FEM coupling for 3D fracture mechanics applications. Computational Mechanics, 2003, 32, 415-422.	2.2	21
52	Analysis of Frequency Stability and Thermoelastic Effects for Slotted Tuning Fork MEMS Resonators. Sensors, 2018, 18, 2157.	2.1	20
53	A BEM technique for free-molecule flows in high frequency MEMS resonators. Engineering Analysis With Boundary Elements, 2009, 33, 493-498.	2.0	19
54	Advanced models for the calculation of capillary attraction in axisymmetric configurations. European Journal of Mechanics, A/Solids, 2014, 47, 298-308.	2.1	18

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55	Experimental study on the impact of anchor losses on the quality factor of contour mode AlN resonators. , 2013, , .		17
56	Mode Coupling and Parametric Resonance in Electrostatically Actuated Micromirrors. IEEE Transactions on Industrial Electronics, 2018, 65, 5962-5969.	5.2	17
57	An Investigation on the Effects of Contact in MEMS Oscillators. Journal of Microelectromechanical Systems, 2018, 27, 963-972.	1.7	17
58	A quallocation enhanced approach for Stokes flow problems with rigid-body boundary conditions. Engineering Analysis With Boundary Elements, 2005, 29, 886-893.	2.0	16
59	Optimization of Sensing Stators in Capacitive MEMS Operating at Resonance. Journal of Microelectromechanical Systems, 2015, 24, 1077-1084.	1.7	16
60	Phase-field modeling for polarization evolution in ferroelectric materials via an isogeometric collocation method. Computer Methods in Applied Mechanics and Engineering, 2019, 351, 789-807.	3.4	16
61	Numerical Modelling of Non-Linearities in MEMS Resonators. Journal of Microelectromechanical Systems, 2020, 29, 1443-1454.	1.7	16
62	Snap-Through Buckling Mechanism for Frequency-up Conversion in Piezoelectric Energy Harvesting. Applied Sciences (Switzerland), 2020, 10, 3614.	1.3	16
63	Reduced order modeling of nonlinear microstructures through Proper Orthogonal Decomposition. Mechanical Systems and Signal Processing, 2022, 171, 108864.	4.4	16
64	A stable 3D energetic Galerkin BEM approach for wave propagation interior problems. Engineering Analysis With Boundary Elements, 2012, 36, 1756-1765.	2.0	15
65	The effect of nano-scale interaction forces on the premature pull-in of real-life Micro-Electro-Mechanical Systems. Microelectronics Reliability, 2012, 52, 271-281.	0.9	15
66	Application of optimally-shaped phononic crystals to reduce anchor losses of MEMS resonators. , 2016, , .		15
67	Energetic BEMâ€FEM coupling for wave propagation in 3D multidomains. International Journal for Numerical Methods in Engineering, 2014, 97, 377-394.	1.5	14
68	Numerical analysis of anchor loss and thermoelastic damping in piezoelectric AlN-on-Si Lamb wave resonators. Journal of Micromechanics and Microengineering, 2019, 29, 105013.	1.5	14
69	Deep learningâ€based reduced order models for the realâ€time simulation of the nonlinear dynamics of microstructures. International Journal for Numerical Methods in Engineering, 2022, 123, 4749-4777.	1.5	14
70	Regularized symmetric Galerkin BIE formulations in the Laplace transform domain for 2D problems. Computational Mechanics, 1998, 22, 50-60.	2.2	13
71	A Lagrangian finite element method for 3D compressible flow applications. Computer Methods in Applied Mechanics and Engineering, 2016, 311, 374-392.	3.4	13
72	A dual-mass frequency-modulated (FM) pitch gyroscope: Mechanical design and modelling. , 2018, , .		13

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73	Multiscale finite-element models for predicting spontaneous adhesion in MEMS. <i>Mecanique Et Industries</i> , 2010, 11, 177-182.	0.2	11
74	Accurate Simulation of Parametrically Excited Micromirrors via Direct Computation of the Electrostatic Stiffness. <i>Sensors</i> , 2017, 17, 779.	2.1	11
75	Thermal Stability of DETF MEMS Resonators: Numerical Modelling and Experimental Validation. , 2020, , .		10
76	Blowout in Gas Storage Caverns. <i>Oil and Gas Science and Technology</i> , 2014, 69, 1251-1267.	1.4	9
77	Enhancement of the Quality Factor of AlN Contour Mode Resonators by Acoustic Reflection: Numerical Design and Experimental Investigation. <i>Procedia Engineering</i> , 2014, 87, 468-471.	1.2	9
78	Evaluation of adhesion in microsystems using equivalent rough surfaces modeled with spherical caps. <i>European Journal of Mechanics, A/Solids</i> , 2016, 57, 121-131.	2.1	9
79	Resonators for real-time clocks based on epitaxial polysilicon process: A feasibility study on system-level compensation of temperature drifts. , 2018, , .		9
80	Magneto-mechanical simulations by a coupled fast multipole methodâ€“finite element method and multigrid solvers. <i>Computers and Structures</i> , 2005, 83, 718-726.	2.4	8
81	â€œMedical Assistance in Contextual awarenessâ€“(AMICO): a project for a better cardiopathic patients quality of care. , 2019, , .		8
82	A fast boundary-finite element approach for estimating anchor losses in Micro-Electro-Mechanical System resonators. <i>Applied Mathematical Modelling</i> , 2021, 97, 741-753.	2.2	8
83	A Lagrangian fluidâ€“structure interaction approach for the simulation of airbag deployment. <i>Finite Elements in Analysis and Design</i> , 2022, 198, 103659.	1.7	8
84	A novel low-frequency multi-bandgaps metaplate: Genetic algorithm based optimization and experimental validation. <i>Mechanical Systems and Signal Processing</i> , 2022, 181, 109495.	4.4	8
85	On-chip tensile test for epitaxial polysilicon. , 0, , .		6
86	Microsystems and Mechanics. <i>Procedia IUTAM</i> , 2014, 10, 138-160.	1.2	6
87	Semi-analytical and numerical estimates of anchor losses in bistable MEMS. <i>International Journal of Solids and Structures</i> , 2016, 92-93, 141-148.	1.3	6
88	Model order reduction for the analysis of large arrays of piezoelectric micromachined ultrasonic transducers in water. <i>Applied Acoustics</i> , 2021, 182, 108231.	1.7	6
89	The First Three-Dimensional Printed and Wet-Metallized Coriolis Mass Flowmeter. , 2020, 4, 1-4.		6
90	On the Application of the Boltzmann Equation to the Simulation of Fluid Structure Interaction in Micro-Electro-Mechanical-Systems. <i>Sensor Letters</i> , 2008, 6, 121-129.	0.4	6

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91	On the analysis of spontaneous adhesion in MEMS. , 2009, , .		5
92	Finite Element modelling of adhesion phenomena in MEMS. , 2010, , .		5
93	On the optimization of piezoelectrically actuated MEMS resonators. , 2012, , .		5
94	On the simulation of the hysteresis loop of polycrystalline PZT thin films. Smart Materials and Structures, 2020, 29, 095007.	1.8	5
95	An experimental assessment of Casimir force effect in micro-electromechanical systems. , 2008, , .		4
96	An Outlook on Potentialities and Limits in Using Epitaxial Polysilicon for MEMS Real-Time Clocks. IEEE Transactions on Industrial Electronics, 2020, 67, 6996-7004.	5.2	4
97	Experimental Evidence of Mechanical Frequency Comb in a Quad-Mass Mems Structure. , 2021, , .		4
98	Fast and Accurate Predictions of MEMS Micromirrors Nonlinear Dynamic Response Using Direct Computation of Invariant Manifolds. , 2022, , .		4
99	Regularized BE formulations for the analysis of fracture in thin plates. International Journal of Fracture, 1997, 84, 351-365.	1.1	3
100	Simulation of Impact Rupture in Polysilicon Mems. , 0, , .		3
101	Design criteria for MEMS magnetometers resonating in free-molecule flow and out of the acoustic bandwidth. , 2012, , .		3
102	Threshold shock sensor based on a bi-stable mechanism. , 2013, , .		3
103	Effect of Stators Geometry on the Resonance Sensitivity of Capacitive MEMS. Procedia Engineering, 2015, 120, 294-297.	1.2	3
104	Comprehensive modelling and experimental verification of air damping coefficients in MEMS of complex geometry. , 2016, , .		3
105	Electro-mechanical validation of a resonant MEMS mirror with PZT actuation and PZR sensing. , 2021, , .		3
106	Micro-Scale Simulation of Impact Rupture in Polysilicon MEMS. , 2006, , 647-648.		3
107	Mechanical characterization of epitaxial polysilicon in MEMS. , 2003, , 722-726.		3
108	Interpolation Based Reduced Order Modelling for Non-linearities in MEMS. , 2020, , .		3

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109	Reduced Order Modelling in a Mems Arch Resonator Exhibiting 1:2 Internal Resonance. , 2022, , .		3
110	Compact MEMS magnetometers for inertial measurement units. , 2012, , .		2
111	Optimization of Lorentz-force MEMS magnetometers using rarefied-gas-theory. , 2013, , .		2
112	Modeling Material Nonlinearities in Piezoelectric Films: Quasi-Static Actuation. , 2021, , .		2
113	Analysis of Gas Flow in MEMS by a Deterministic 3D BKG Kinetic Model. Sensor Letters, 2008, 6, 69-75.	0.4	2
114	Numerical Simulation of Impact-Induced Rupture in Polysilicon MEMS. Sensor Letters, 2008, 6, 35-42.	0.4	2
115	A Defect-Based MEMS Phononic Crystal Slab Waveguide. , 2022, , .		2
116	On a robust BEM formulation for the Dirichlet problem of exterior stokes flow. Mechanics Research Communications, 2006, 33, 329-336.	1.0	1
117	Intrinsic dissipation in microelectromechanical systems. , 2008, , .		1
118	An on-chip experimental assessment Of Casimir force effect in micro-electromechanical systems. , 2010, , .		1
119	A kinetic model for capillary flows in MEMS. , 2012, , .		1
120	Experimental and numerical assessment of adhesion in real-life MEMS. , 2012, , .		1
121	Fast Stokes Solvers for MEMS. Lecture Notes in Applied and Computational Mechanics, 2012, , 221-240.	2.0	1
122	A Lagrangian Approach to the Simulation of a Constricted Vacuum Arc in a Magnetic Field. Mathematics in Industry, 2018, , 243-253.	0.1	1
123	Fluid damping modeling for MEMS sensors operating in the 10 kHzâ€“100 kHz range in near vacuum. , 2018, , .		1
124	Nonlinear dynamics of MEMS resonators: numerical modelling and experiments. , 2019, , .		1
125	The Symmetric Galerkin BEM in Linear and Non-Linear Fracture Mechanics. , 2003, , 167-204.		1
126	Q OPTIMIZATION VIA QUARTER WAVE ACOUSTIC TRANSFORMERS IN THE BODY OF ALN CONTOUR-MODE RESONATORS. , 2014, , .		1

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127	Integral equations for free-molecule flow in MEMS: recent advancements. Communications in Applied and Industrial Mathematics, 2017, 8, 67-80.	0.6	1
128	Piezoelectric Micromirrors with Geometric and Material Nonlinearities: Experimental Study and Numerical Modeling. , 2020, , .		1
129	Investigation of Quasi-Periodic Solutions in Nonlinear Oscillators Featuring Internal Resonance. , 2022, , 797-806.		1
130	Linear and Nonlinear Mechanics in MEMS. , 2022, , 389-437.		1
131	On the evaluation of damping forces in MEMS. , 0, , .		0
132	MVT corrections for the evaluation of damping in MEMS. , 0, , .		0
133	On the application of the BGK model to the simulation of fluid structure interaction in MEMS. , 0, , .		0
134	The BGK kinetic model applied to the analysis of gas-structure interactions in MEMS. , 2007, , .		0
135	Analysis of fluid-structure interaction in low pressure MEMS by Integral Equations. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10007-10010.	0.2	0
136	A wide pressure range estimate of gas damping in polysilicon inertial MEMS devices. , 2008, , .		0
137	Mechanical Characterization of Polysilicon at the Micro-Scale Through On-Chip Tests. Computational and Experimental Methods in Structures, 2008, , 427-454.	0.2	0
138	Evaluating Gas Damping in MEMS Using Fast Integral Equation Solvers. Computational and Experimental Methods in Structures, 2008, , 153-181.	0.2	0
139	Numerical modelling of anchor losses in MEMS resonators. , 2012, , .		0
140	Interface dissipation in piezoelectric MEMS resonators: An experimental and numerical investigation. , 2013, , .		0
141	Magneto-mechanical simulations by a coupled fast multipole method-finite element method. , 2003, , 1347-1349.		0
142	Boundary Integral Equations and Fluid-Structure Interaction at the Micro Scale. , 2009, , 93-111.		0
143	COMPUTATION OF ADHESIVE FORCES DUE TO VAN DER WAALS AND CAPILLARY EFFECTS ON REALISTIC ROUGH SURFACES. , 0, , .		0
144	A LAGRANGIAN FINITE ELEMENT METHOD FOR THE SIMULATION OF 3D COMPRESSIBLE FLOWS. , 2016, , .		0

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145	GREENâ€™S FUNCTION FOR THE EVALUATION OF ANCHOR LOSSES IN MEMS. , 2016, , .		0
146	MEMS Resonators: Numerical Modeling. Lecture Notes in Mechanical Engineering, 2020, , 1159-1166.	0.3	0
147	Full-Order Frequency-Domain Simulations of Nonlinear Piezoelectric MEMS. , 2022, , 291-300.		0