Narayana Aluru

List of Publications by Citations

277 papers	13,307 citations	60 h-index	108 g-index
298 ext. papers	15,217 ext. citations	5.9 avg, IF	7.03 L-index

#	Paper	IF	Citations
277	Size and chirality dependent elastic properties of graphene nanoribbons under uniaxial tension. *Nano Letters*, **2009**, 9, 3012-5	11.5	653
276	Why are carbon nanotubes fast transporters of water?. *Nano Letters*, **2008**, 8, 452-8	11.5	629
275	Single-layer MoS2 nanopores as nanopower generators. *Nature*, **2016**, 536, 197-200	50.4	560
274	Water desalination with a single-layer MoS2 nanopore. *Nature Communications*, **2015**, 6, 8616	17.4	435
273	Water Transport through Ultrathin Graphene. *Journal of Physical Chemistry Letters*, **2010**, 1, 1590-1594	6.4	399
272	Anomalously Immobilized Water: A New Water Phase Induced by Confinement in Nanotubes. *Nano Letters*, **2003**, 3, 589-592	11.5	377
271	Calculation of pull-in voltages for carbon-nanotube-based nanoelectromechanical switches. *Nanotechnology*, **2002**, 13, 120-131	3.4	360
270	Equilibrium swelling and kinetics of pH-responsive hydrogels: models, experiments, and simulations. *Journal of Microelectromechanical Systems*, **2002**, 11, 544-555	2.5	322
269	Ion concentrations and velocity profiles in nanochannel electroosmotic flows. *Journal of Chemical Physics*, **2003**, 118, 4692-4701	3.9	263
268	Temperature and strain-rate dependent fracture strength of graphene. *Journal of Applied Physics*, **2010**, 108, 064321	2.5	258
267	DNA base detection using a single-layer MoS2. *ACS Nano*, **2014**, 8, 7914-22	16.7	251
266	Mechanical properties of graphene under shear deformation. *Applied Physics Letters*, **2011**, 98, 013113	3.4	243
265	Electrolytic transport through a synthetic nanometer-diameter pore. *Proceedings of the National Academy of Sciences of the United States of America*, **2005**, 102, 10445-50	11.5	198
264	Charge inversion and flow reversal in a nanochannel electro-osmotic flow. *Physical Review Letters*, **2004**, 92, 198301	7.4	182
263	Stacked graphene-Al2O3 nanopore sensors for sensitive detection of DNA and DNA-protein complexes. *ACS Nano*, **2012**, 6, 441-50	16.7	173
262	Water permeation through a subnanometer boron nitride nanotube. *Journal of the American Chemical Society*, **2007**, 129, 2748-9	16.4	169
261	A point collocation method based on reproducing kernel approximations. *International Journal for Numerical Methods in Engineering*, **2000**, 47, 1083-1121	2.4	167

260	Electrolytic Transport in Modified Carbon Nanotubes. *Nano Letters*, **2003**, 3, 1399-1403	11.5	164
259	Measurement of adherent cell mass and growth. *Proceedings of the National Academy of Sciences of the United States of America*, **2010**, 107, 20691-6	11.5	153
258	Structure and Dynamics of Water Confined in a Boron Nitride Nanotube. *Journal of Physical Chemistry C*, **2008**, 112, 1812-1818	3.8	136
257	Ultrathin, transferred layers of thermally grown silicon dioxide as biofluid barriers for biointegrated flexible electronic systems. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 11682-11687	11.5	133
256	Effect of cross-linking on the diffusion of water, ions, and small molecules in hydrogels. *Journal of Physical Chemistry B*, **2009**, 113, 3512-20	3.4	132
255	Pumping of confined water in carbon nanotubes by rotation-translation coupling. *Physical Review Letters*, **2008**, 101, 064502	7.4	126
254	Ultrasensitive detection of nucleic acids using deformed graphene channel field effect biosensors. *Nature Communications*, **2020**, 11, 1543	17.4	123
253	Critical Knowledge Gaps in Mass Transport through Single-Digit Nanopores: A Review and Perspective. *Journal of Physical Chemistry C*, **2019**, 123, 21309-21326	3.8	121
252	Finite cloud method: a true meshless technique based on a fixed reproducing kernel approximation. *International Journal for Numerical Methods in Engineering*, **2001**, 50, 2373-2410	2.4	118
251	Spatial diffusion of water in carbon nanotubes: from fickian to ballistic motion. *Journal of Physical Chemistry B*, **2011**, 115, 12145-9	3.4	115
250	Graphitic carbon-water nonbonded interaction parameters. *Journal of Physical Chemistry B*, **2013**, 117, 8802-13	3.4	109
249	Fast reverse osmosis using boron nitride and carbon nanotubes. *Applied Physics Letters*, **2008**, 92, 133120	3.4	108
248	The role of external defects in chemical sensing of graphene field-effect transistors. *Nano Letters*, **2013**, 13, 1962-8	11.5	107
247	Full-Lagrangian schemes for dynamic analysis of electrostatic MEMS. *Journal of Microelectromechanical Systems*, **2004**, 13, 737-758	2.5	106
246	Effect of quantum partial charges on the structure and dynamics of water in single-walled carbon nanotubes. *Journal of Chemical Physics*, **2006**, 125, 114701	3.9	102
245	DNA translocation through an array of kinked nanopores. *Nature Materials*, **2010**, 9, 667-75	27	98
244	Doping-Induced Tunable Wettability and Adhesion of Graphene. *Nano Letters*, **2016**, 16, 4708-12	11.5	97
243	Electrochemistry at the edge of a single graphene layer in a nanopore. *ACS Nano*, **2013**, 7, 834-43	16.7	95

242	Simulating the behavior of MEMS devices: computational methods and needs. *IEEE Computational Science and Engineering*, **1997**, 4, 30-43		93
241	Ion separation using a Y-junction carbon nanotube. *Nanotechnology*, **2006**, 17, 895-900	3.4	91
240	Molecular and continuum hydrodynamics in graphene nanopores. *RSC Advances*, **2013**, 3, 9365	3.7	89
239	A chemo-electro-mechanical mathematical model for simulation of pH sensitive hydrogels. *Mechanics of Materials*, **2004**, 36, 395-410	3.3	85
238	Static and Dynamic Analysis of Carbon Nanotube-Based Switches. *Journal of Engineering Materials and Technology, Transactions of the ASME*, **2004**, 126, 230-237	1.8	84
237	Laterally extended atomically precise graphene nanoribbons with improved electrical conductivity for efficient gas sensing. *Nature Communications*, **2017**, 8, 820	17.4	79
236	Finite-temperature quasicontinuum method for multiscale analysis of silicon nanostructures. *Physical Review B*, **2006**, 74,	3.3	79
235	Atomistic simulation of KCl transport in charged silicon nanochannels: Interfacial effects. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **2005**, 267, 103-109	5.1	79
234	An efficient numerical technique for electrochemical simulation of complicated microelectromechanical structures. *Sensors and Actuators A: Physical*, **1997**, 58, 1-11	3.9	78
233	Atypical Dependence of Electroosmotic Transport on Surface Charge in a Single-wall Carbon Nanotube. *Nano Letters*, **2003**, 3, 1013-1017	11.5	78
232	Mechanisms for hydrolysis of silicon nanomembranes as used in bioresorbable electronics. *Advanced Materials*, **2015**, 27, 1857-64	24	77
231	Ion transport in sub-5-nm graphene nanopores. *Journal of Chemical Physics*, **2014**, 140, 084707	3.9	75
230	Spectroscopic investigation of the wettability of multilayer graphene using highly ordered pyrolytic graphite as a model material. *Langmuir*, **2014**, 30, 12827-36	4	73
229	Induced electrokinetic transport in micro-nanofluidic interconnect devices. *Langmuir*, **2007**, 23, 13209-22	4	73
228	DNA Origami-Graphene Hybrid Nanopore for DNA Detection. *ACS Applied Materials & Interfaces*, **2017**, 9, 92-100	9.5	67
227	A Combined Continuum/DSMC Technique for Multiscale Analysis of Microfluidic Filters. *Journal of Computational Physics*, **2002**, 178, 342-372	4.1	67
226	Complex nonlinear oscillations in electrostatically actuated microstructures. *Journal of Microelectromechanical Systems*, **2006**, 15, 355-369	2.5	66
225	A domain adaptive stochastic collocation approach for analysis of MEMS under uncertainties. *Journal of Computational Physics*, **2009**, 228, 7662-7688	4.1	65

224	Hexagonal boron nitride and water interaction parameters. *Journal of Chemical Physics*, **2016**, 144, 164118	3.9	65
223	. *IEEE Transactions on Antennas and Propagation*, **2012**, 60, 301-309	4.9	63
222	Theory of thermoelastic damping in electrostatically actuated microstructures. *Physical Review B*, **2006**, 74,	3.3	63
221	Dissolution of Monocrystalline Silicon Nanomembranes and Their Use as Encapsulation Layers and Electrical Interfaces in Water-Soluble Electronics. *ACS Nano*, **2017**, 11, 12562-12572	16.7	61
220	Molecular understanding of osmosis in semipermeable membranes. *Physical Review Letters*, **2006**, 97, 024501	7.4	61
219	Hierarchical multiscale simulation of electrokinetic transport in silica nanochannels at the point of zero charge. *Langmuir*, **2006**, 22, 9041-51	4	60
218	Curved neuromorphic image sensor array using a MoS-organic heterostructure inspired by the human visual recognition system. *Nature Communications*, **2020**, 11, 5934	17.4	60
217	Development and modeling of electrically triggered hydrogels for microfluidic applications. *Journal of Microelectromechanical Systems*, **2005**, 14, 1198-1207	2.5	58
216	Meshless analysis of piezoelectric devices. *Computational Mechanics*, **2001**, 27, 23-36	4	58
215	Scaling of electrokinetic transport in nanometer channels. *Langmuir*, **2005**, 21, 8972-7	4	57
214	Positivity conditions in meshless collocation methods. *Computer Methods in Applied Mechanics and Engineering*, **2004**, 193, 1171-1202	5.7	56
213	Mechanism for stamp collapse in soft lithography. *Applied Physics Letters*, **2005**, 87, 251925	3.4	53
212	Quasiharmonic models for the calculation of thermodynamic properties of crystalline silicon under strain. *Journal of Applied Physics*, **2006**, 99, 064314	2.5	51
211	Inducing electronic changes in graphene through silicon (100) substrate modification. *Nano Letters*, **2011**, 11, 2735-42	11.5	50
210	Modeling and Simulation of Ionic Currents in Three-Dimensional Microfluidic Devices with Nanofluidic Interconnects. *Journal of Nanoparticle Research*, **2005**, 7, 507-516	2.3	50
209	A reproducing kernel particle method for meshless analysis of microelectromechanical systems. *Computational Mechanics*, **1999**, 23, 324-338	4	50
208	Rotational motion of a single water molecule in a buckyball. *Physical Chemistry Chemical Physics*, **2013**, 15, 17993-8000	3.6	49
207	Adsorption Kinetics Dictate Monolayer Self-Assembly for Both Lipid-In and Lipid-Out Approaches to Droplet Interface Bilayer Formation. *Langmuir*, **2015**, 31, 12883-93	4	48

206	Relative Entropy and Optimization-Driven Coarse-Graining Methods in VOTCA. *PLoS ONE*, **2015**, 10, e0131754	3.7	48
205	A compact model for electroosmotic flows in microfluidic devices. *Journal of Micromechanics and Microengineering*, **2002**, 12, 625-635	2	47
204	Combined circuit/device modeling and simulation of integrated microfluidic systems. *Journal of Microelectromechanical Systems*, **2005**, 14, 81-95	2.5	46
203	Boundary cloud method: a combined scattered point/boundary integral approach for boundary-only analysis. *Computer Methods in Applied Mechanics and Engineering*, **2002**, 191, 2337-2370	5.7	46
202	Meshless analysis of steady-state electro-osmotic transport. *Journal of Microelectromechanical Systems*, **2000**, 9, 435-449	2.5	46
201	Modeling Water Flow Through Carbon Nanotube Membranes with Entrance/Exit Effects. *Nanoscale and Microscale Thermophysical Engineering*, **2017**, 21, 247-262	3.7	45
200	Surface-charge-induced asymmetric electrokinetic transport in confined silicon nanochannels. *Applied Physics Letters*, **2005**, 86, 143105	3.4	45
199	Complex oscillations and chaos in electrostatic microelectromechanical systems under superharmonic excitations. *Physical Review Letters*, **2005**, 94, 204101	7.4	45
198	Water-solubility-driven separation of gases using graphene membrane. *Journal of Membrane Science*, **2013**, 428, 546-553	9.6	44
197	Ordering-Induced Fast Diffusion of Nanoscale Water Film on Graphene. *Journal of Physical Chemistry C*, **2010**, 114, 2595-2599	3.8	43
196	Solution-Synthesized Chevron Graphene Nanoribbons Exfoliated onto H:Si(100). *Nano Letters*, **2017**, 17, 170-178	11.5	42
195	Strain Modulation of Graphene by Nanoscale Substrate Curvatures: A Molecular View. *Nano Letters*, **2018**, 18, 2098-2104	11.5	42
194	Akhiezer damping in nanostructures. *Physical Review B*, **2011**, 84,	3.3	42
193	Linear, nonlinear and mixed-regime analysis of electrostatic MEMS. *Sensors and Actuators A: Physical*, **2001**, 91, 278-291	3.9	42
192	Modeling mechanophore activation within a crosslinked glassy matrix. *Journal of Applied Physics*, **2013**, 114, 023504	2.5	41
191	Existence of Multiple Phases of Water at Nanotube Interfaces. *Journal of Physical Chemistry C*, **2016**, 120, 23763-23771	3.8	41
190	Resonant MEMS Mass Sensors for Measurement of Microdroplet Evaporation. *Journal of Microelectromechanical Systems*, **2012**, 21, 702-711	2.5	40
189	Gated transport in nanofluidic devices. *Microfluidics and Nanofluidics*, **2011**, 11, 297-306	2.8	40

188	A Lagrangian approach for electrostatic analysis of deformable conductors. *Journal of Microelectromechanical Systems*, **2002**, 11, 245-254	2.5	39
187	Temperature-dependent wettability on a titanium dioxide surface. *Molecular Simulation*, **2009**, 35, 31-372		38
186	Effect of induced electric field on single-file reverse osmosis. *Physical Chemistry Chemical Physics*, **2009**, 11, 8614-9	3.6	38
185	A quasi-continuum hydrodynamic model for slit shaped nanochannel flow. *Journal of Chemical Physics*, **2013**, 139, 074109	3.9	36
184	Efficient mixed-domain analysis of electrostatic MEMS. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, **2003**, 22, 1228-1242	2.5	35
183	Interatomic potential-based semiclassical theory for Lennard-Jones fluids. *Journal of Chemical Physics*, **2007**, 127, 174701	3.9	33
182	Kirigami-inspired strain-insensitive sensors based on atomically-thin materials. *Materials Today*, **2020**, 34, 58-65	21.8	33
181	Stochastic Analysis of Electrostatic MEMS Subjected to Parameter Variations. *Journal of Microelectromechanical Systems*, **2009**, 18, 1454-1468	2.5	32
180	Simulating Ion Permeation Through the ompF Porin Ion Channel Using Three-Dimensional Drift-Diffusion Theory. *Journal of Computational Electronics*, **2003**, 2, 29-47	1.8	32
179	Coarse-Grained Potential Model for Structural Prediction of Confined Water. *Journal of Chemical Theory and Computation*, **2012**, 8, 1828-40	6.4	31
178	Physical models for coupled electromechanical analysis of silicon nanoelectromechanical systems. *Journal of Applied Physics*, **2005**, 97, 114304	2.5	31
177	Differential ion transport induced electroosmosis and internal recirculation in heterogeneous osmosis membranes. *Nano Letters*, **2006**, 6, 995-9	11.5	31
176	Identification of amino acids with sensitive nanoporous MoS2: towards machine learning-based prediction. *Npj 2D Materials and Applications*, **2018**, 2,	8.8	29
175	Separation of gases from gas–water mixtures using carbon nanotubes. *Applied Physics Letters*, **2010**, 96, 133108	3.4	28
174	A chloride ion-selective boron nitride nanotube. *Chemical Physics Letters*, **2009**, 478, 185-190	2.5	28
173	Highly Efficient Solar-Driven Carbon Dioxide Reduction on Molybdenum Disulfide Catalyst Using Choline Chloride-Based Electrolyte. *Advanced Energy Materials*, **2019**, 9, 1803536	21.8	26
172	Capacitive Sensing of Intercalated H2O Molecules Using Graphene. *ACS Applied Materials & Interfaces*, **2015**, 7, 25804-12	9.5	26
171	A multilevel Newton method for mixed-energy domain simulation of MEMS. *Journal of Microelectromechanical Systems*, **1999**, 8, 299-308	2.5	26

170	Measurements of the size and correlations between ions using an electrolytic point contact. *Nature Communications*, **2019**, 10, 2382	17.4	25
169	Strong Electroosmotic Coupling Dominates Ion Conductance of 1.5 nm Diameter Carbon Nanotube Porins. *ACS Nano*, **2019**, 13, 12851-12859	16.7	25
168	Crosslinking PMMA: Molecular dynamics investigation of the shear response. *Journal of Polymer Science, Part B: Polymer Physics*, **2014**, 52, 444-449	2.6	25
167	Parameterization of Continuum Theories for Single Wall Carbon Nanotube Switches by Molecular Dynamics Simulations. *Journal of Computational Electronics*, **2002**, 1, 313-316	1.8	25
166	A boundary cloud method with a cloud-by-cloud polynomial basis. *Engineering Analysis With Boundary Elements*, **2003**, 27, 57-71	2.6	25
165	New approximations and collocation schemes in the finite cloud method. *Computers and Structures*, **2005**, 83, 1366-1385	4.5	25
164	Multiscale Simulation of Electroosmotic Transport Using Embedding Techniques. *International Journal for Multiscale Computational Engineering*, **2004**, 2, 173-188	2.4	24
163	The interaction between hexagonal boron nitride and water from first principles. *Journal of Chemical Physics*, **2015**, 142, 234702	3.9	23
162	Coarse-grained potential models for structural prediction of carbon dioxide (CO2) in confined environments. *Journal of Chemical Physics*, **2012**, 136, 024102	3.9	23
161	A stochastic Lagrangian approach for geometrical uncertainties in electrostatics. *Journal of Computational Physics*, **2007**, 226, 156-179	4.1	23
160	Coupling of hierarchical fluid models with electrostatic and mechanical models for the dynamic analysis of MEMS. *Journal of Micromechanics and Microengineering*, **2006**, 16, 1705-1719	2	23
159	Calculation of thermodynamic and mechanical properties of silicon nanostructures using the local phonon density of states. *Physical Review B*, **2006**, 74,	3.3	23
158	Coarse-Grained Force Field for Imidazolium-Based Ionic Liquids. *Journal of Chemical Theory and Computation*, **2018**, 14, 3252-3261	6.4	23
157	Antibody Subclass Detection Using Graphene Nanopores. *Journal of Physical Chemistry Letters*, **2017**, 8, 1670-1676	6.4	22
156	Thermodynamic state-dependent structure-based coarse-graining of confined water. *Journal of Chemical Physics*, **2012**, 137, 214707	3.9	21
155	Water phase transition induced by a Stone-Wales defect in a boron nitride nanotube. *Journal of the American Chemical Society*, **2008**, 130, 13649-52	16.4	21
154	Self-consistent molecular dynamics formulation for electric-field-mediated electrolyte transport through nanochannels. *Physical Review E*, **2007**, 76, 011202	2.4	21
153	Multiscale modeling of electroosmotic flow: Effects of discrete ion, enhanced viscosity, and surface friction. *Journal of Chemical Physics*, **2017**, 146, 184106	3.9	20

152	Understanding anomalous current-voltage characteristics in microchannel-nanochannel interconnect devices. *Journal of Colloid and Interface Science*, **2012**, 384, 162-71	9.3	20
151	Three-Dimensional Continuum Simulations of Ion Transport Through Biological Ion Channels: Effect of Charge Distribution in the Constriction Region of Porin. *Journal of Computational Electronics*, **2002**, 1, 335-340	1.8	20
150	Coupling of the mesh-free finite cloud method with the boundary element method: a collocation approach. *Computer Methods in Applied Mechanics and Engineering*, **2003**, 192, 2355-2375	5.7	20
149	. *Journal of Microelectromechanical Systems*, **2001**, 10, 538-549	2.5	20
148	Three-Dimensional Molecular Mapping of Ionic Liquids at Electrified Interfaces. *ACS Nano*, **2020**,	16.7	20
147	Universal Reduction in Dielectric Response of Confined Fluids. *ACS Nano*, **2020**, 14, 12761-12770	16.7	20
146	Strain-resilient electrical functionality in thin-film metal electrodes using two-dimensional interlayers.. *Nature Electronics*, **2021**, 4, 126-133	28.4	20
145	Transfer-Learning-Based Coarse-Graining Method for Simple Fluids: Toward Deep Inverse Liquid-State Theory. *Journal of Physical Chemistry Letters*, **2019**, 10, 1242-1250	6.4	19
144	Thermodynamic insight into spontaneous hydration and rapid water permeation in aquaporins. *Applied Physics Letters*, **2014**, 105, 083702	3.4	19
143	Mathematical Modeling and Simulation of Dissolvable Hydrogels. *Journal of Aerospace Engineering*, **2003**, 16, 55-64	1.4	19
142	ATOMISTIC CAPACITANCE OF A NANOTUBE ELECTROMECHANICAL DEVICE. *International Journal of Nanoscience*, **2002**, 01, 337-346	0.6	19
141	A finite element formulation for the hydrodynamic semiconductor device equations. *Computer Methods in Applied Mechanics and Engineering*, **1993**, 107, 269-298	5.7	19
140	Nanofluidic Transport Theory with Enhancement Factors Approaching One. *ACS Nano*, **2020**, 14, 272-281	16.7	19
139	Interfacial friction based quasi-continuum hydrodynamical model for nanofluidic transport of water. *Journal of Chemical Physics*, **2015**, 143, 174702	3.9	18
138	A transferable coarse-grained potential to study the structure of confined, supercritical Lennard-Jones fluids. *Journal of Chemical Physics*, **2010**, 132, 044703	3.9	18
137	Analysis of Hybrid Electrothermomechanical Microactuators With Integrated Electrothermal and Electrostatic Actuation. *Journal of Microelectromechanical Systems*, **2009**, 18, 1126-1136	2.5	18
136	A data-driven stochastic collocation approach for uncertainty quantification in MEMS. *International Journal for Numerical Methods in Engineering*, **2010**, 83, 575-597	2.4	18
135	Mechanistic Insights into Hydration of Solid Oxides. *Chemistry of Materials*, **2018**, 30, 138-144	9.6	18

134	Scanning tunneling spectroscopy and density functional calculation of silicon dangling bonds on the Si(100)-2□1:H surface. *Surface Science*, **2013**, 609, 147-151	1.8	17
133	Electromechanical Signatures for DNA Sequencing through a Mechanosensitive Nanopore. *Journal of Physical Chemistry Letters*, **2015**, 6, 650-7	6.4	17
132	Atomistic simulations on the mechanical properties of a silicon nanofilm covered with graphene. *Computational Materials Science*, **2011**, 50, 3063-3066	3.2	17
131	Molybdenum disulfide and water interaction parameters. *Journal of Chemical Physics*, **2017**, 147, 104706	3.9	16
130	Diffusion of water submonolayers on hydrophilic surfaces. *Applied Physics Letters*, **2008**, 93, 253104	3.4	16
129	Modeling of dielectric charging in RF MEMS capacitive switches. *Microwave and Optical Technology Letters*, **2007**, 49, 3188-3192	1.2	16
128	Stochastic modeling of coupled electromechanical interaction for uncertainty quantification in electrostatically actuated MEMS. *Computer Methods in Applied Mechanics and Engineering*, **2008**, 197, 3456-3471	5.7	16
127	The role of A-site ion on proton diffusion in perovskite oxides (ABO3). *Journal of Power Sources*, **2020**, 445, 227327	8.9	16
126	Ion Transport in Electrically Imperfect Nanopores. *ACS Nano*, **2020**, 14, 10518-10526	16.7	16
125	Highly Strain-Tunable Interlayer Excitons in MoS/WSe Heterobilayers. *Nano Letters*, **2021**, 21, 3956-3964	11.5	16
124	Asymmetric-Fluidic-Reservoirs Induced High Rectification Nanofluidic Diode. *Scientific Reports*, **2018**, 8, 13941	4.9	16
123	Electrical Double Layer of Supported Atomically Thin Materials. *Nano Letters*, **2019**, 19, 4588-4593	11.5	15
122	Characterization of electrochemical properties of a micro□nanochannel integrated system using computational impedance spectroscopy (CIS). *Electrochimica Acta*, **2013**, 105, 514-523	6.7	15
121	Simulation and experiment of substrate aluminum grain orientation dependent self-ordering in anodic porous alumina. *Journal of Applied Physics*, **2013**, 113, 204903	2.5	15
120	Self-assembly of graphenes. *Surface Science*, **2011**, 605, 1616-1620	1.8	15
119	Controlling the ionic current rectification factor of a nanofluidic/microfluidic interface with symmetric nanocapillary interconnects. *Analytical Chemistry*, **2015**, 87, 3598-605	7.8	14
118	Surface diffusion of n-alkanes: Mechanism and anomalous behavior. *Chemical Physics Letters*, **2007**, 447, 310-315	2.5	14
117	Numerical analysis of 3D electrostatics of deformable conductors using a Lagrangian approach. *Engineering Analysis With Boundary Elements*, **2004**, 28, 583-591	2.6	14

116	Energy Dissipation in Fluid Coupled Nanoresonators: The Effect of Phonon-Fluid Coupling. *ACS Nano*, **2018**, 12, 368-377	16.7	13
115	Hybrid techniques for electrostatic analysis of nanoelectromechanical systems. *Journal of Applied Physics*, **2004**, 96, 2221-2231	2.5	13
114	Transient analysis of electro-osmotic transport by a reduced-order modelling approach. *International Journal for Numerical Methods in Engineering*, **2003**, 56, 1023-1050	2.4	13
113	Dispersion control in nano-channel systems by localized potential variations. *Sensors and Actuators A: Physical*, **2003**, 104, 268-274	3.9	13
112	Numerical solution of two-carrier hydrodynamic semiconductor device equations employing a stabilized finite element method. *Computer Methods in Applied Mechanics and Engineering*, **1995**, 125, 187-220	5.7	13
111	Langevin-Poisson-EQT: A dipolar solvent based quasi-continuum approach for electric double layers. *Journal of Chemical Physics*, **2017**, 146, 044108	3.9	12
110	A sparse grid based collocation method for model order reduction of finite element approximations of passive electromagnetic devices under uncertainty **2010**,		12
109	Size and surface orientation effects on thermal expansion coefficient of one-dimensional silicon nanostructures. *Journal of Applied Physics*, **2009**, 105, 104309	2.5	12
108	Multiscale electrostatic analysis of silicon nanoelectromechanical systems (NEMS) via heterogeneous quantum models. *Physical Review B*, **2008**, 77,	3.3	12
107	Carbon nanotube screening effects on the water-ion channels. *Applied Physics Letters*, **2008**, 93, 43122	3.4	12
106	Algorithms in FastStokes and Its Application to Micromachined Device Simulation. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, **2006**, 25, 248-257	2.5	12
105	An EQT-cDFT approach to determine thermodynamic properties of confined fluids. *Journal of Chemical Physics*, **2015**, 142, 244116	3.9	11
104	Multiscale modeling of droplet interface bilayer membrane networks. *Biomicrofluidics*, **2015**, 9, 064101	3.2	11
103	Weighted Smolyak algorithm for solution of stochastic differential equations on non-uniform probability measures. *International Journal for Numerical Methods in Engineering*, **2011**, 85, 1365-1389	2.4	11
102	A fast boundary cloud method for exterior 2D electrostatic analysis. *International Journal for Numerical Methods in Engineering*, **2003**, 56, 239-260	2.4	11
101	Ultrasensitive Detection of Dopamine, IL-6 and SARS-CoV-2 Proteins on Crumpled Graphene FET Biosensor.. *Advanced Materials Technologies*, **2021**, 6, 2100712	6.8	11
100	A multiscale model for charge inversion in electric double layers. *Journal of Chemical Physics*, **2018**, 148, 214102	3.9	10
99	Intrinsic dissipation in a nano-mechanical resonator. *Journal of Applied Physics*, **2014**, 116, 094304	2.5	10

98	Efficient mixed-domain analysis of electrostatic MEMS. *IEEE/ACM International Conference on Computer-Aided Design, Digest of Technical Papers*, **2002**,		10
97	Selective filling of n-hexane in a tight nanopore. *Nature Communications*, **2021**, 12, 310	17.4	10
96	A Multiscale Model for Electrochemical Reactions in LSCF Based Solid Oxide Cells. *Journal of the Electrochemical Society*, **2018**, 165, F1232-F1241	3.9	10
95	Extended coarse-grained dipole model for polar liquids: Application to bulk and confined water. *Physical Review E*, **2018**, 98,	2.4	10
94	Nonlinear intrinsic dissipation in single layer MoS2 resonators. *RSC Advances*, **2017**, 7, 6403-6410	3.7	9
93	Quantitative Chemical Imaging of Nonplanar Microfluidics. *Analytical Chemistry*, **2017**, 89, 1716-1723	7.8	9
92	Mechanical properties of a silicon nanofilm covered with defective graphene. *Surface Science*, **2013**, 611, 80-85	1.8	9
91	Suk and Aluru Reply:. *Physical Review Letters*, **2010**, 105,	7.4	9
90	U -sequence in electrostatic microelectromechanical systems (MEMS). *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2006**, 462, 3435-3464	2.4	9
89	Improved multi-level Newton solvers for fully coupled multi-physics problems. *International Journal for Numerical Methods in Engineering*, **2003**, 58, 463-480	2.4	9
88	Water-Assisted Increase of Ionic Conductivity of Lithium Poly(acrylic acid)-Based Aqueous Polymer Electrolyte. *ACS Applied Energy Materials*, **2020**, 3, 10119-10130	6.1	9
87	Accelerated design and discovery of perovskites with high conductivity for energy applications through machine learning. *Npj Computational Materials*, **2021**, 7,	10.9	9
86	Nano-electro-mechanical pump: Giant pumping of water in carbon nanotubes. *Scientific Reports*, **2016**, 6, 26211	4.9	9
85	Molecular Dynamics Properties without the Full Trajectory: A Denoising Autoencoder Network for Properties of Simple Liquids. *Journal of Physical Chemistry Letters*, **2019**, 10, 7568-7576	6.4	9
84	Ion Solvation and Transport in Narrow Carbon Nanotubes: Effects of Polarizability, Cation-□ Interaction, and Confinement. *Journal of Chemical Theory and Computation*, **2021**, 17, 1596-1605	6.4	9
83	Integral equation theory based direct and accelerated systematic coarse-graining approaches. *Journal of Chemical Physics*, **2018**, 148, 214105	3.9	9
82	Optimization of solidification in die casting using numerical simulations and machine learning. *Journal of Manufacturing Processes*, **2020**, 51, 130-141	5	8
81	Nonlinear Electrokinetic Transport Under Combined ac and dc Fields in Micro/Nanofluidic Interface Devices. *Journal of Fluids Engineering, Transactions of the ASME*, **2013**, 135,	2.1	8

80	Water film thickness-dependent conformation and diffusion of single-strand DNA on poly(ethylene glycol)-silane surface. *Applied Physics Letters*, **2010**, 96, 123703	3.4	8
79	A hybrid full-Lagrangian technique for the static and dynamic analysis of magnetostatic MEMS. *Journal of Micromechanics and Microengineering*, **2006**, 16, 2646-2658	2	8
78	A Lagrangian approach for quantum-mechanical electrostatic analysis of deformable silicon nanostructures. *Engineering Analysis With Boundary Elements*, **2006**, 30, 925-939	2.6	8
77	Interfacial Properties of Water on Hydrogenated and Fluorinated Graphene Surfaces: Parametrization of Nonbonded Interactions. *Journal of Physical Chemistry C*, **2020**, 124, 21467-21475	3.8	8
76	An EQT-based cDFT approach for thermodynamic properties of confined fluid mixtures. *Journal of Chemical Physics*, **2017**, 146, 154102	3.9	7
75	An EQT-based cDFT approach for a confined Lennard-Jones fluid mixture. *Journal of Chemical Physics*, **2015**, 143, 124106	3.9	7
74	Mechanistic Analysis of Gas Enrichment in Gas–Water Mixtures near Extended Surfaces. *Journal of Physical Chemistry C*, **2011**, 115, 17495-17502	3.8	7
73	A compact model for dielectric charging in RF MEMS capacitive switches. *International Journal of RF and Microwave Computer-Aided Engineering*, **2009**, 19, 197-203	1.5	7
72	A methodology for fast finite element modeling of electrostatically actuated MEMS. *International Journal for Numerical Methods in Engineering*, **2009**, 77, 1789-1808	2.4	7
71	Charge distribution on thin semiconducting silicon nanowires. *Computer Methods in Applied Mechanics and Engineering*, **2008**, 197, 3366-3377	5.7	7
70	AN ANALYSIS OF THE HYDRODYNAMIC SEMICONDUCTOR DEVICE MODEL – BOUNDARY CONDITIONS AND SIMULATIONS. *COMPEL - the International Journal for Computation and Mathematics in Electrical and Electronic Engineering*, **1995**, 14, 157-185	0.7	7
69	Revisiting Sampson's theory for hydrodynamic transport in ultrathin nanopores. *Physical Review Research*, **2020**, 2,	3.9	7
68	Memory effects in nanoparticle dynamics and transport. *Journal of Chemical Physics*, **2016**, 145, 134108	3.9	7
67	Understanding the effect of Ce and Zr on chemical expansion in yttrium doped strontium cerate and zirconate by high temperature X-ray analysis and density functional theory. *Solid State Ionics*, **2019**, 333, 1-8	3.3	6
66	Confinement-Induced Enhancement of Parallel Dielectric Permittivity: Super Permittivity Under Extreme Confinement. *Journal of Physical Chemistry Letters*, **2020**, 11, 10532-10537	6.4	6
65	Thermal noise in confined fluids. *Journal of Chemical Physics*, **2014**, 141, 174707	3.9	6
64	Mechanically modulated electronic properties of water-filled fullerenes. *MRS Communications*, **2015**, 5, 305-310	2.7	6
63	Phonon mediated loss in a graphene nanoribbon. *Journal of Applied Physics*, **2013**, 114, 084302	2.5	6

62	Mechanical behavior of water filled C60. *Applied Physics Letters*, **2013**, 103, 263112	3.4	6
61	Detection of defective DNA in carbon nanotubes by combined molecular dynamics/tight-binding technique. *Applied Physics Letters*, **2009**, 95, 113116	3.4	6
60	Pull-in/out analysis of nano/microelectromechanical switches with defective oxide layers. *Applied Physics Letters*, **2009**, 95, 073112	3.4	6
59	Perturbation of Microfluidic Transport Following Electrokinetic Injection through a Nanocapillary Array Membrane: Injection and Biphasic Recovery. *Journal of Physical Chemistry C*, **2008**, 112, 19242-19247	3.8	6
58	Multiscale mechanical analysis of silicon nanostructures by combined finite temperature models. *Computer Methods in Applied Mechanics and Engineering*, **2008**, 197, 3215-3224	5.7	6
57	Effect of size-asymmetric electrolyte on single-file osmosis. *Applied Physics Letters*, **2006**, 89, 064107	3.4	6
56	Combined semiclassical and effective-mass Schrödinger approach for multiscale analysis of semiconductor nanostructures. *Physical Review B*, **2007**, 76,	3.3	6
55	Accurate Simulation of RF MEMS VCO performance including phase noise. *Journal of Microelectromechanical Systems*, **2005**, 14, 313-325	2.5	6
54	Surface-Modified Hydrogels for Chemoselective Bioconjugation. *Macromolecules*, **2003**, 36, 8846-8852	5.5	6
53	Mixed role of surface on intrinsic losses in silicon nanostructures. *Journal of Applied Physics*, **2016**, 119, 114304	2.5	6
52	Anomalous scaling of flexural phonon damping in nanoresonators with confined fluid. *Microsystems and Nanoengineering*, **2019**, 5, 2	7.7	5
51	Current understanding and emerging applications of 3D crumpling mediated 2D material-liquid interactions. *Current Opinion in Solid State and Materials Science*, **2020**, 24, 100836	12	5
50	A multiscale transport model for non-classical nanochannel electroosmosis. *Journal of Chemical Physics*, **2017**, 147, 214105	3.9	5
49	A combined quasi-continuum/Langevin equation approach to study the self-diffusion dynamics of confined fluids. *Journal of Chemical Physics*, **2013**, 138, 124109	3.9	5
48	A conformal mapping-based approach for fast two-dimensional FEM electrostatic analysis of MEMS devices. *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, **2011**, 24, 194-206	1	5
47	A node-based agglomeration AMG solver for linear elasticity in thin bodies. *Communications in Numerical Methods in Engineering*, **2009**, 25, 219-236		5
46	Applications in micro- and nanoelectromechanical systems. *Engineering Analysis With Boundary Elements*, **2006**, 30, 909	2.6	5
45	A multiscale framework to predict electrochemical characteristics of yttrium doped Barium Zirconate based solid oxide cells. *Journal of Power Sources*, **2021**, 481, 228969	8.9	5

44	Size effect on brittle and ductile fracture of two-dimensional interlinked carbon nanotube network. *Physica B: Condensed Matter*, **2017**, 520, 82-88	2.8	4
43	Intrinsic loss due to unstable modes in graphene. *Nanotechnology*, **2013**, 24, 275701	3.4	4
42	A NONSTATIONARY COVARIANCE FUNCTION MODEL FOR SPATIAL UNCERTAINTIES IN ELECTROSTATICALLY ACTUATED MICROSYSTEMS **2015**, 5, 99-121		4
41	Uncertainty quantification of MEMS using a data-dependent adaptive stochastic collocation method. *Computer Methods in Applied Mechanics and Engineering*, **2011**, 200, 3169-3182	5.7	4
40	Simulation of Biological Ionic Channels by Technology Computer-Aided Design. *VLSI Design*, **2001**, 13, 179-187		4
39	A multiscale transport model for Lennard-Jones binary mixtures based on interfacial friction. *Journal of Chemical Physics*, **2016**, 145, 074115	3.9	4
38	Diameter Dependence of Water Filling in Lithographically Segmented Isolated Carbon Nanotubes. *ACS Nano*, **2021**, 15, 2778-2790	16.7	4
37	Uncertainty quantification in three dimensional natural convection using polynomial chaos expansion and deep neural networks. *International Journal of Heat and Mass Transfer*, **2019**, 139, 613-631	4.9	3
36	Finite volume simulation framework for die casting with uncertainty quantification. *Applied Mathematical Modelling*, **2019**, 74, 132-150	4.5	3
35	Spatial Uncertainty Modeling for Surface Roughness of Additively Manufactured Microstructures via Image Segmentation. *Applied Sciences (Switzerland)*, **2019**, 9, 1093	2.6	3
34	Cluster Expansion Framework for the Sr(Ti1⊠Fex)O3⊠/2 (0 Chemistry of Materials, **2019**, 31, 3144-3153	9.6	3
33	Simulations of Die Casting With Uncertainty Quantification. *Journal of Manufacturing Science and Engineering, Transactions of the ASME*, **2019**, 141,	3.3	3
32	Chevron-type graphene nanoribbons with a reduced energy band gap: Solution synthesis, scanning tunneling microscopy and electrical characterization. *Nano Research*, **2020**, 13, 1713-1722	10	3
31	Avalanche effects near nanojunctions. *Physical Review E*, **2016**, 94, 012402	2.4	3
30	Ab initio based interionic potential for silver iodide. *Solid State Ionics*, **2018**, 325, 102-111	3.3	3
29	Effect of intermolecular force on the static/dynamic behaviour of M/NEM devices. *Nanotechnology*, **2014**, 25, 485204	3.4	3
28	Improved statistical models for limited datasets in uncertainty quantification using stochastic collocation. *Journal of Computational Physics*, **2013**, 255, 521-539	4.1	3
27	An empirical potential based quasicontinuum theory for structural prediction of water. *Journal of Chemical Physics*, **2009**, 131, 184703	3.9	3

26	A fast boundary cloud method for 3D exterior electrostatic analysis. *International Journal for Numerical Methods in Engineering*, **2004**, 59, 2019-2046	2.4	3
25	Simulation of the hydrodynamic device model on distributed memory parallel computers. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, **1996**, 15, 1029-1047	2.5	3
24	Nonlinear electrohydrodynamic ion transport in graphene nanopores.. *Science Advances*, **2022**, 8, eabj2510	14.3	3
23	Dynamic and weak electric double layers in ultrathin nanopores. *Journal of Chemical Physics*, **2021**, 154, 134703	3.9	3
22	1/f pink chaos in nanopores. *RSC Advances*, **2017**, 7, 46092-46100	3.7	2
21	Intrinsic Dissipation Due to Mode Coupling in Two-Dimensional-Material Resonators Revealed Through a Multiscale Approach. *Physical Review Applied*, **2020**, 14,	4.3	2
20	Silicon Nanomembranes: Mechanisms for Hydrolysis of Silicon Nanomembranes as Used in Bioresorbable Electronics (Adv. Mater. 11/2015). *Advanced Materials*, **2015**, 27, 1856-1856	24	2
19	A semi-local quasi-harmonic model to compute the thermodynamic and mechanical properties of silicon nanostructures. *Journal of Physics Condensed Matter*, **2007**, 19, 226202	1.8	2
18	Super-resolved Optical Mapping of Reactive Sulfur-Vacancies in Two-Dimensional Transition Metal Dichalcogenides. *ACS Nano*, **2021**, 15, 7168-7178	16.7	2
17	Electronic Structure and Transport in Graphene Nanoribbon Heterojunctions under Uniaxial Strain: Implications for Flexible Electronics. *ACS Applied Nano Materials*, **2021**, 4, 5816-5824	5.6	2
16	Anomalous interfacial dynamics of single proton charges in binary aqueous solutions. *Science Advances*, **2021**, 7, eabg8568	14.3	2
15	Prospects for sub-nanometer scale imaging of optical phenomena using electron microscopy. *Applied Physics Letters*, **2021**, 118, 033104	3.4	2
14	Anomalous characteristics of pore formation in Graphene induced by Si-nanoparticle bombardment. *MRS Communications*, **2017**, 7, 840-847	2.7	1
13	Data-driven stochastic models for spatial uncertainties in micromechanical systems. *Journal of Micromechanics and Microengineering*, **2015**, 25, 115009	2	1
12	Order reduction of finite element models of passive electromagnetic structures with statistical variability **2010**,		1
11	Carbon nanotubes as nanoelectromechanical systems components **2006**, 361-488		1
10	Modeling of hydrogel swelling in buffered solutions **2001**,		1
9	Toward Durable Protonic Ceramic Cells: Hydration-Induced Chemical Expansion Correlates with Symmetry in the Y-Doped BaZrO3−BaCeO3 Solid Solution. *Journal of Physical Chemistry C*, **2021**, 125, 26216-26228	3.8	1

8	Understanding simple liquids through statistical and deep learning approaches. *Journal of Chemical Physics*, **2021**, 154, 204503	3.9	1
7	Culture-free biphasic approach for sensitive detection of Escherichia coli O157:H7 from beef samples. *Biotechnology and Bioengineering*, **2021**, 118, 4516-4529	4.9	1
6	Interstitial proton transport through defective MXenes. *Applied Physics Letters*, **2022**, 120, 211601	3.4	1
5	Pore-Scale Modeling of Electrokinetics in Geomaterials. *Transport in Porous Media*, **2021**, 137, 651-666	3.1	0
4	Characterizing phonon dynamics using stochastic sampling. *Journal of Applied Physics*, **2016**, 119, 115101	2.5	
3	Corrections to Analysis of Hybrid Electrothermomechanical Microactuators With Integrated Electrothermal and Electrostatic Actuation [Oct 09 1126-1136]. *Journal of Microelectromechanical Systems*, **2010**, 19, 430-430	2.5	
2	Nonlinear Dynamics of Electrostatically Actuated MEMS. *Computational and Experimental Methods in Structures*, **2008**, 235-286		
1	Analysis of the Effect of Spatial Uncertainties on the Dynamic Behavior of Electrostatic Microactuators. *Communications in Computational Physics*, **2016**, 20, 279-300	2.4	