# Steven J Plimpton

## List of Publications by Citations



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|---|---|---|---|
| 55 papers | 33,484 citations | 29 h-index | 56 g-index |
| 56 ext. papers | 39,459 ext. citations | 4.7 avg, IF | 8.01 L-index |

| # | Paper | IF | Citations |
|---|---|---|---|
| 55 | Fast Parallel Algorithms for Short-Range Molecular Dynamics. *Journal of Computational Physics*, **1995**, 117, 1-19 | 4.1 | 27311 |
| 54 | Dynamical Heterogeneities in a Supercooled Lennard-Jones Liquid. *Physical Review Letters*, **1997**, 79, 2827-2830 | 7.4 | 784 |
| 53 | Stringlike Cooperative Motion in a Supercooled Liquid. *Physical Review Letters*, **1998**, 80, 2338-2341 | 7.4 | 784 |
| 52 | General formulation of pressure and stress tensor for arbitrary many-body interaction potentials under periodic boundary conditions. *Journal of Chemical Physics*, **2009**, 131, 154107 | 3.9 | 517 |
| 51 | Spatial correlations of mobility and immobility in a glass-forming Lennard-Jones liquid. *Physical Review E*, **1999**, 60, 3107-19 | 2.4 | 425 |
| 50 | Implementing molecular dynamics on hybrid high performance computers □short range forces. *Computer Physics Communications*, **2011**, 182, 898-911 | 4.2 | 400 |
| 49 | Equilibration of long chain polymer melts in computer simulations. *Journal of Chemical Physics*, **2003**, 119, 12718-12728 | 3.9 | 399 |
| 48 | LAMMPS - a flexible simulation tool for particle-based materials modeling at the atomic, meso, and continuum scales. *Computer Physics Communications*, **2021**, 271, 108171 | 4.2 | 315 |
| 47 | Li-Ion Synaptic Transistor for Low Power Analog Computing. *Advanced Materials*, **2017**, 29, 1604310 | 24 | 276 |
| 46 | Implementing molecular dynamics on hybrid high performance computers □Particle□particle particle-mesh. *Computer Physics Communications*, **2012**, 183, 449-459 | 4.2 | 267 |
| 45 | Computational aspects of many-body potentials. *MRS Bulletin*, **2012**, 37, 513-521 | 3.2 | 201 |
| 44 | Computing the mobility of grain boundaries. *Nature Materials*, **2006**, 5, 124-7 | 27 | 197 |
| 43 | Implementing peridynamics within a molecular dynamics code. *Computer Physics Communications*, **2008**, 179, 777-783 | 4.2 | 193 |
| 42 | MapReduce in MPI for Large-scale graph algorithms. *Parallel Computing*, **2011**, 37, 610-632 | 1 | 130 |
| 41 | Particle dynamics modeling methods for colloid suspensions. *Computational Particle Mechanics*, **2014**, 1, 321-356 | 3 | 110 |
| 40 | A new parallel method for molecular dynamics simulation of macromolecular systems. *Journal of Computational Chemistry*, **1996**, 17, 326-337 | 3.5 | 94 |
| 39 | Evaporation of Lennard-Jones fluids. *Journal of Chemical Physics*, **2011**, 134, 224704 | 3.9 | 76 |

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| 38 | Computational limits of classical molecular dynamics simulations. *Computational Materials Science*, **1995**, 4, 361-364 | 3.2 | 73 |
| 37 | Effect of end-tethered polymers on surface adhesion of glassy polymers. *Journal of Polymer Science, Part B: Polymer Physics*, **2004**, 42, 199-208 | 2.6 | 69 |
| 36 | Molecular dynamics simulations of low-energy (25200 eV) argon ion interactions with silicon surfaces: Sputter yields and product formation pathways. *Journal of Applied Physics*, **1998**, 83, 4055-4063 | 2.5 | 67 |
| 35 | Parallel strategies for crash and impact simulations. *Computer Methods in Applied Mechanics and Engineering*, **2000**, 184, 375-390 | 5.7 | 58 |
| 34 | Accurate and efficient methods for modeling colloidal mixtures in an explicit solvent using molecular dynamics. *Computer Physics Communications*, **2008**, 179, 320-329 | 4.2 | 53 |
| 33 | Liquid crystal nanodroplets in solution. *Journal of Chemical Physics*, **2009**, 130, 044901 | 3.9 | 52 |
| 32 | Finding strongly connected components in distributed graphs. *Journal of Parallel and Distributed Computing*, **2005**, 65, 901-910 | 4.4 | 50 |
| 31 | Discrete element simulations of stress distributions in silos: crossover from two to three dimensions. *Powder Technology*, **2004**, 139, 233-239 | 5.2 | 49 |
| 30 | Massively parallel symplectic algorithm for coupled magnetic spin dynamics and molecular dynamics. *Journal of Computational Physics*, **2018**, 372, 406-425 | 4.1 | 43 |
| 29 | Software components for parallel multiscale simulation: an example with LAMMPS. *Engineering With Computers*, **2010**, 26, 205-211 | 4.5 | 42 |
| 28 | Parallel Transient Dynamics Simulations: Algorithms for Contact Detection and Smoothed Particle Hydrodynamics. *Journal of Parallel and Distributed Computing*, **1998**, 50, 104-122 | 4.4 | 37 |
| 27 | Mesoscale hydrodynamics via stochastic rotation dynamics: comparison with Lennard-Jones fluid. *Journal of Chemical Physics*, **2010**, 132, 174106 | 3.9 | 34 |
| 26 | A historical survey of algorithms and hardware architectures for neural-inspired and neuromorphic computing applications. *Biologically Inspired Cognitive Architectures*, **2017**, 19, 49-64 | | 29 |
| 25 | A parallel rendezvous algorithm for interpolation between multiple grids. *Journal of Parallel and Distributed Computing*, **2004**, 64, 266-276 | 4.4 | 29 |
| 24 | No-slip boundary conditions and forced flow in multiparticle collision dynamics. *Physical Review E*, **2012**, 86, 066703 | 2.4 | 27 |
| 23 | Substructured molecular dynamics using multibody dynamics algorithms. *International Journal of Non-Linear Mechanics*, **2008**, 43, 1040-1055 | 2.8 | 27 |
| 22 | Oxygen Modulates the Effectiveness of Granuloma Mediated Host Response to Mycobacterium tuberculosis: A Multiscale Computational Biology Approach. *Frontiers in Cellular and Infection Microbiology*, **2016**, 6, 6 | 5.9 | 27 |
| 21 | Parallel Sn Sweeps on Unstructured Grids: Algorithms for Prioritization, Grid Partitioning, and Cycle Detection. *Nuclear Science and Engineering*, **2005**, 150, 267-283 | 1.2 | 25 |

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| 20 | A load-balancing algorithm for a parallel electromagnetic particle-in-cell code. *Computer Physics Communications*, **2003**, 152, 227-241 | 4.2 | 24 |
| 19 | Optimizing legacy molecular dynamics software with directive-based offload. *Computer Physics Communications*, **2015**, 195, 95-101 | 4.2 | 23 |
| 18 | Accelerating dissipative particle dynamics simulations for soft matter systems. *Computational Materials Science*, **2015**, 100, 173-180 | 3.2 | 22 |
| 17 | Effect of shape and friction on the packing and flow of granular materials. *Physical Review E*, **2018**, 98, | 2.4 | 20 |
| 16 | Molecular dynamics simulations of athermal polymer blends: Comparison with integral equation theory. *Journal of Chemical Physics*, **1995**, 103, 1208-1215 | 3.9 | 19 |
| 15 | Highly scalable discrete-particle simulations with novel coarse-graining: accessing the microscale. *Molecular Physics*, **2018**, 116, 2061-2069 | 1.7 | 11 |
| 14 | Aspherical particle models for molecular dynamics simulation. *Computer Physics Communications*, **2019**, 243, 12-24 | 4.2 | 10 |
| 13 | Parallel Genehunter: implementation of a linkage analysis package for distributed-memory architectures. *Journal of Parallel and Distributed Computing*, **2003**, 63, 674-682 | 4.4 | 10 |
| 12 | Granular packings with sliding, rolling, and twisting friction. *Physical Review E*, **2020**, 102, 032903 | 2.4 | 10 |
| 11 | Streaming data analytics via message passing with application to graph algorithms. *Journal of Parallel and Distributed Computing*, **2014**, 74, 2687-2698 | 4.4 | 8 |
| 10 | Carbon sequestration in Synechococcus Sp.: from molecular machines to hierarchical modeling. *OMICS A Journal of Integrative Biology*, **2002**, 6, 305-30 | 3.8 | 8 |
| 9 | Developing community codes for materials modeling. *Current Opinion in Solid State and Materials Science*, **2013**, 17, 271-276 | 12 | 7 |
| 8 | The effect of attractions on the structure and thermodynamics of model polymer blends. *Journal of Chemical Physics*, **1997**, 107, 4024-4032 | 3.9 | 7 |
| 7 | Feature length-scale modeling of LPCVD and PECVD MEMS fabrication processes. *Microsystem Technologies*, **2005**, 12, 137-142 | 1.7 | 6 |
| 6 | Scalability and Performance of Two Large Linux Clusters. *Journal of Parallel and Distributed Computing*, **2001**, 61, 1546-1569 | 4.4 | 6 |
| 5 | The diffusion of simple penetrants in tangent site polymer melts. *Journal of Chemical Physics*, **1999**, 111, 9822-9831 | 3.9 | 5 |
| 4 | Increasing Molecular Dynamics Simulation Rates with an 8-Fold Increase in Electrical Power Efficiency **2016**, | | 3 |
| 3 | Load-balancing techniques for a parallel electromagnetic particle-in-cell code | | 2 |

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| 2 | Parallel algorithms for hyperdynamics and local hyperdynamics. *Journal of Chemical Physics*, **2020**, 153, 054116 | 3.9 | 2 |
| 1 | Rendezvous algorithms for large-scale modeling and simulation. *Journal of Parallel and Distributed Computing*, **2021**, 147, 184-195 | 4.4 | 1 |