Thomas E Cheatham

List of Publications by Year in descending order

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127 papers

38,258 citations

25034 57 h-index 122 g-index

131 all docs

131 docs citations

131 times ranked

29024 citing authors

| # | Article | IF | CITATIONS |
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| 1 | The Amber biomolecular simulation programs. Journal of Computational Chemistry, 2005, 26, 1668-1688. | 3.3 | 7,742 |
| 2 | PTRAJ and CPPTRAJ: Software for Processing and Analysis of Molecular Dynamics Trajectory Data. Journal of Chemical Theory and Computation, 2013, 9, 3084-3095. | 5.3 | 4,960 |
| 3 | Calculating Structures and Free Energies of Complex Molecules:  Combining Molecular Mechanics and Continuum Models. Accounts of Chemical Research, 2000, 33, 889-897. | 15.6 | 4,098 |
| 4 | AMBER, a package of computer programs for applying molecular mechanics, normal mode analysis, molecular dynamics and free energy calculations to simulate the structural and energetic properties of molecules. Computer Physics Communications, 1995, 91, 1-41. | 7.5 | 2,839 |
| 5 | Determination of Alkali and Halide Monovalent Ion Parameters for Use in Explicitly Solvated Biomolecular Simulations. Journal of Physical Chemistry B, 2008, 112, 9020-9041. | 2.6 | 2,756 |
| 6 | Refinement of the AMBER Force Field for Nucleic Acids: Improving the Description of $\hat{l}\pm\hat{l}^3$ Conformers. Biophysical Journal, 2007, 92, 3817-3829. | 0.5 | 2,036 |
| 7 | Continuum Solvent Studies of the Stability of DNA, RNA, and Phosphoramidatea^'DNA Helices. Journal of the American Chemical Society, 1998, 120, 9401-9409. | 13.7 | 1,442 |
| 8 | A Modified Version of the Cornell <i>et al.</i> Force Field with Improved Sugar Pucker Phases and Helical Repeat. Journal of Biomolecular Structure and Dynamics, 1999, 16, 845-862. | 3.5 | 882 |
| 9 | Refinement of the Cornell et al. Nucleic Acids Force Field Based on Reference Quantum Chemical Calculations of Glycosidic Torsion Profiles. Journal of Chemical Theory and Computation, 2011, 7, 2886-2902. | 5.3 | 873 |
| 10 | Clustering Molecular Dynamics Trajectories: 1. Characterizing the Performance of Different Clustering Algorithms. Journal of Chemical Theory and Computation, 2007, 3, 2312-2334. | 5.3 | 721 |
| 11 | Molecular Dynamics Simulations of the Dynamic and Energetic Properties of Alkali and Halide Ions Using Water-Model-Specific Ion Parameters. Journal of Physical Chemistry B, 2009, 113, 13279-13290. | 2.6 | 476 |
| 12 | Refinement of the Sugar–Phosphate Backbone Torsion Beta for AMBER Force Fields Improves the Description of Z- and B-DNA. Journal of Chemical Theory and Computation, 2015, 11, 5723-5736. | 5.3 | 392 |
| 13 | Assessing the Current State of Amber Force Field Modifications for DNA. Journal of Chemical Theory and Computation, 2016, 12, 4114-4127. | 5.3 | 351 |
| 14 | A systematic molecular dynamics study of nearest-neighbor effects on base pair and base pair step conformations and fluctuations in B-DNA. Nucleic Acids Research, 2010, 38, 299-313. | 14.5 | 349 |
| 15 | The flying ice cube: Velocity rescaling in molecular dynamics leads to violation of energy equipartition. Journal of Computational Chemistry, 1998, 19, 726-740. | 3.3 | 347 |
| 16 | Performance of Molecular Mechanics Force Fields for RNA Simulations: Stability of UUCG and GNRA Hairpins. Journal of Chemical Theory and Computation, 2010, 6, 3836-3849. | 5.3 | 339 |
| 17 | MOLECULARDYNAMICSSIMULATION OFNUCLEICACIDS. Annual Review of Physical Chemistry, 2000, 51, 435-471. | 10.8 | 330 |
| 18 | Molecular dynamics simulation of nucleic acids: Successes, limitations, and promise. Biopolymers, 2000, 56, 232-256. | 2.4 | 307 |

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| 19 | Molecular Dynamics Simulations Highlight the Structural Differences among DNA:DNA, RNA:RNA, and DNA:RNA Hybrid Duplexes. Journal of the American Chemical Society, 1997, 119, 4805-4825. | 13.7 | 257 |
| 20 | Toward Improved Description of DNA Backbone: Revisiting Epsilon and Zeta Torsion Force Field Parameters. Journal of Chemical Theory and Computation, 2013, 9, 2339-2354. | 5.3 | 255 |
| 21 | Molecular Dynamics Simulations of the 136 Unique Tetranucleotide Sequences of DNA Oligonucleotides. I. Research Design and Results on d(CpG) Steps. Biophysical Journal, 2004, 87, 3799-3813. | 0.5 | 245 |
| 22 | DNA Basepair Step Deformability Inferred from Molecular Dynamics Simulations. Biophysical Journal, 2003, 85, 2872-2883. | 0.5 | 237 |
| 23 | Reference Simulations of Noncanonical Nucleic Acids with Different χ Variants of the AMBER Force Field: Quadruplex DNA, Quadruplex RNA, and Z-DNA. Journal of Chemical Theory and Computation, 2012, 8, 2506-2520. | 5.3 | 231 |
| 24 | Molecular Dynamics Simulations of the 136 Unique Tetranucleotide Sequences of DNA Oligonucleotides. II: Sequence Context Effects on the Dynamical Structures of the 10 Unique Dinucleotide Steps. Biophysical Journal, 2005, 89, 3721-3740. | 0.5 | 216 |
| 25 | Simulation and modeling of nucleic acid structure, dynamics and interactions. Current Opinion in Structural Biology, 2004, 14, 360-367. | 5.7 | 212 |
| 26 | Quantum mechanically derived AMBERâ€compatible heme parameters for various states of the cytochrome P450 catalytic cycle. Journal of Computational Chemistry, 2012, 33, 119-133. | 3.3 | 210 |
| 27 | An accurate and simple quantum model for liquid water. Journal of Chemical Physics, 2006, 125, 184507. | 3.0 | 187 |
| 28 | \hat{l} ABC: a systematic microsecond molecular dynamics study of tetranucleotide sequence effects in B-DNA. Nucleic Acids Research, 2014, 42, 12272-12283. | 14.5 | 186 |
| 29 | Molecular Dynamics and Continuum Solvent Studies of the Stability of PolyG-PolyC and PolyA-PolyT DNA Duplexes in Solution. Journal of Biomolecular Structure and Dynamics, 1998, 16, 265-280. | 3.5 | 183 |
| 30 | Removal of pressure and free energy artifacts in charged periodic systems via net charge corrections to the Ewald potential. Journal of Chemical Physics, 1998, 108, 7070-7084. | 3.0 | 162 |
| 31 | Spontaneous Formation of KCl Aggregates in Biomolecular Simulations: A Force Field Issue?. Journal of Chemical Theory and Computation, 2007, 3, 1851-1859. | 5.3 | 159 |
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| 33 | Molecular Dynamics Simulations and Thermodynamics Analysis of DNAâ^'Drug Complexes. Minor Groove Binding between 4 ,6-Diamidino-2-phenylindole and DNA Duplexes in Solution. Journal of the American Chemical Society, 2003, 125, 1759-1769. | 13.7 | 150 |
| 34 | Intercalation processes of copper complexes in DNA. Nucleic Acids Research, 2015, 43, 5364-5376. | 14.5 | 137 |
| 35 | Convergence and reproducibility in molecular dynamics simulations of the DNA duplex d(GCACGAACGAACGAACGC). Biochimica Et Biophysica Acta - General Subjects, 2015, 1850, 1041-1058. | 2.4 | 136 |
| 36 | Formation Pathways of a Guanine-Quadruplex DNA Revealed by Molecular Dynamics and Thermodynamic Analysis of the Substates. Biophysical Journal, 2003, 85, 1787-1804. | 0.5 | 128 |

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| 37 | Improved Force Field Parameters Lead to a Better Description of RNA Structure. Journal of Chemical Theory and Computation, 2015, 11, 3969-3972. | 5. 3 | 126 |
| 38 | Highly sampled tetranucleotide and tetraloop motifs enable evaluation of common RNA force fields. Rna, 2015, 21, 1578-1590. | 3 . 5 | 123 |
| 39 | Single Stranded Loops of Quadruplex DNA As Key Benchmark for Testing Nucleic Acids Force Fields. Journal of Chemical Theory and Computation, 2009, 5, 2514-2530. | 5. 3 | 121 |
| 40 | Multidimensional Replica Exchange Molecular Dynamics Yields a Converged Ensemble of an RNA Tetranucleotide. Journal of Chemical Theory and Computation, 2014, 10, 492-499. | 5. 3 | 120 |
| 41 | Explaining the varied glycosidic conformational, G-tract length and sequence preferences for anti-parallel G-quadruplexes. Nucleic Acids Research, 2011, 39, 4499-4512. | 14.5 | 119 |
| 42 | Molecular Dynamics Simulations of Guanine Quadruplex Loops: Advances and Force Field Limitations. Biophysical Journal, 2004, 87, 227-242. | 0.5 | 116 |
| 43 | Molecular dynamics simulations of G-DNA and perspectives on the simulation of nucleic acid structures. Methods, 2012, 57, 25-39. | 3.8 | 111 |
| 44 | Structural dynamics of possible late-stage intermediates in folding of quadruplex DNA studied by molecular simulations. Nucleic Acids Research, 2013, 41, 7128-7143. | 14.5 | 111 |
| 45 | Relative Stability of Different DNA Guanine Quadruplex Stem Topologies Derived Using Large-Scale Quantum-Chemical Computations. Journal of the American Chemical Society, 2013, 135, 9785-9796. | 13.7 | 108 |
| 46 | Dynamically Amorphous Character of Electronic States in Poly(dA)â^Poly(dT) DNA. Journal of Physical Chemistry B, 2003, 107, 2581-2587. | 2.6 | 106 |
| 47 | Insight into the stabilization of A-DNA by specific ion association: spontaneous B-DNA to A-DNA transitions observed in molecular dynamics simulations of d[ACCCGCGGGT]2 in the presence of hexaamminecobalt(III). Structure, 1997, 5, 1297-1311. | 3.3 | 104 |
| 48 | Adventures in Improving the Scaling and Accuracy of a Parallel Molecular Dynamics Program. Journal of Supercomputing, 1997, 11, 255-278. | 3.6 | 99 |
| 49 | Parallelization of CPPTRAJ enables large scale analysis of molecular dynamics trajectory data. Journal of Computational Chemistry, 2018, 39, 2110-2117. | 3.3 | 97 |
| 50 | Antifreeze Proteins at the Ice/Water Interface: Three Calculated Discriminating Properties for Orientation of Type I Proteins. Biophysical Journal, 2007, 93, 1442-1451. | 0.5 | 90 |
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| 52 | Critical Effect of the N2 Amino Group on Structure, Dynamics, and Elasticity of DNA Polypurine Tracts. Biophysical Journal, 2002, 82, 2592-2609. | 0.5 | 84 |
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| 54 | Triplex intermediates in folding of human telomeric quadruplexes probed by microsecond-scale molecular dynamics simulations. Biochimie, 2014, 105, 22-35. | 2.6 | 72 |

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| 57 | Unrestrained Molecular Dynamics of Photodamaged DNA in Aqueous Solution. Journal of the American Chemical Society, 1997, 119, 7095-7104. | 13.7 | 62 |
| 58 | Recent advances in molecular dynamics simulation towards the realistic representation of biomolecules in solution. Theoretical Chemistry Accounts, 1998, 99, 279-288. | 1.4 | 61 |
| 59 | Reliable Oligonucleotide Conformational Ensemble Generation in Explicit Solvent for Force Field Assessment Using Reservoir Replica Exchange Molecular Dynamics Simulations. Journal of Physical Chemistry B, 2013, 117, 4014-4027. | 2.6 | 60 |
| 60 | Insight into G-DNA Structural Polymorphism and Folding from Sequence and Loop Connectivity through Free Energy Analysis. Journal of the American Chemical Society, 2011, 133, 14270-14279. | 13.7 | 58 |
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| 62 | Ethidium bromide interactions with DNA: an exploration of a classic DNA–ligand complex with unbiased molecular dynamics simulations. Nucleic Acids Research, 2021, 49, 3735-3747. | 14.5 | 55 |
| 63 | Defining a conformational ensemble that directs activation of PPAR \hat{I}^3 . Nature Communications, 2018, 9, 1794. | 12.8 | 53 |
| 64 | Geometrical and Electronic Structure Variability of the Sugarâ^'phosphate Backbone in Nucleic Acids. Journal of Physical Chemistry B, 2008, 112, 8188-8197. | 2.6 | 52 |
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| 91 | iBIOMES: Managing and Sharing Biomolecular Simulation Data in a Distributed Environment. Journal of Chemical Information and Modeling, 2013, 53, 726-736. | 5.4 | 18 |
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| 111 | Exploring potentially alternative non-canonical DNA duplex structures through simulation. Journal of Biomolecular Structure and Dynamics, 2019, 37, 2201-2210. | 3.5 | 5 |
| 112 | Molecular dynamics simulation of nucleic acids: Successes, limitations, and promise* We would like to dedicate this article to Peter Kollman, a friend, collaborator, mentor, and all around good guy. Peter was very enthusiastic about DNA simulation; he will be sorely missed Biopolymers, 2000, 56, 232. | 2.4 | 5 |
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