Aleksandar Donev

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1 Education and Degrees

September 2006 **Princeton University**, Princeton, NJ
Ph.D., Program in Applied and Computational Mathematics
Dissertation title: *Jammed Packings of Hard Particles*
Advisor: Professor Salvatore Torquato, Chemistry Department

May 2001 **Michigan State University**, East Lansing, MI
Bachelor of Science, Physics
Honors (GPA 4.0), with one semester of graduate Teaching Assistant fellowship

2 Awards and Grants

Sept 2021-July 2024
Lead PI DMS-2052515 "Computational modeling of cytoskeleton-cytoplasm mechanics at the mesoscale," *Computational Biology, DMS, National Science Foundation*

July 2020-June 2023
PI DMS-2011544 "Fast Electrostatics and Brownian Hydrodynamics in Doubly-Periodic Geometries," *Computational and Applied Mathematics, DMS, National Science Foundation*

Sept 2017-Aug 2022
Lead PI RTG DMS-1646339 "Research Training Group in Mathematical Modeling and Simulation," *Computational and Applied Mathematics, DMS, National Science Foundation*

June 2018-May 2022
PI CBET-1804940 "Active Colloids under AC Electric Fields: From Single Particle Motion to Collective Dynamics," **collaborative** grant with Ning Wu (Chem E, Colorado Mines), *Fluid Dynamics, CBET, National Science Foundation*

Sept 2016-Aug 2020
Co-Lead (with Paul Chaikin) of IRG on Active and Driven Colloids in the **NYU MRSEC center** DMR-1420073, *Division of Materials Research, DMR, National Science Foundation*

Sept 2017-Aug 2020
Lead PI PMP-1706562 "Magnetic microrollers as a platform for active transport," *Particulate and Multiphase Processes, ENG/CBET/PMP, National Science Foundation*

Sept 2017-Dec 2017
Simons Fellow in Mathematics, *Mathematics and Physical Sciences, Simons Foundation*

July 2014-June 2017
PI DMS-1418706 "Fluctuating Hydrodynamics of Suspensions of Rigid Bodies," **collaborative** grant with Neelesh Patankar (Mech Eng, Northwestern), *Computational and Applied Mathematics, DMS, National Science Foundation*

July 2012-June 2017
> **Early Career Research Award**, *Applied Mathematics, Office of Science, Department of Energy (DOE)*

June 2012-June 2015
> **Young Investigator Research Award**, *Computational Mathematics, Air Force Office of Scientific Research (AFOSR)*

June 2011-June 2014
> **PI** DMS-1115341 "Computer simulations of giant fluctuations in mixing fluids," *Computational and Applied Mathematics, DMS, National Science Foundation*

August 2009 **Luis W. Alvarez Postdoctoral Fellowship**, Lawrence Berkeley National Laboratory, Berkeley, CA

August 2006 **Lawrence Postdoctoral Fellowship**, Lawrence Livermore National Laboratory, Livermore, CA

2005-2006 **Ray Grimm Memorial Prize** in Computational Physics, Princeton University, Princeton, NJ

3 Work and Research Experience

Sept 2018 - present
> ***Professor of Mathematics***, **New York University**, New York, NY

Sept 2015 - Aug 2018
> ***Associate Professor of Mathematics***, **New York University**, New York, NY

August 2010 - August 2015
> ***Assistant Professor of Mathematics***, **New York University**, New York, NY
> Courant Institute of Mathematical Sciences
> *Research*: Fluctuating hydrodynamics [46, 40, 47, 38, 36, 35, 34, 48, 43, 44, 56, 50, 53, 55, 51, 57, 54, 61, 58, 67, 68, 72, 74, 75], fluid-structure coupling [49, 37, 45, 39, 60, 52, 59, 62], computational fluid dynamics [42, 56, 53, 60, 81], stochastic differential equations and Brownian Dynamics [41, 38, 44, 66, 70, 69, 71, 73, 76, 79, 83], active particle suspensions [59, 65, 64, 70, 63, 78, 77, 87], slender fiber (actin) suspensions [80, 82, 85, 86, 84, 88, 89]
> *Funding*: NSF, DOE, AFOSR

August 2009 - July 2010
> ***Luis W. Alvarez Postdoctoral Fellow***
> **Lawrence Berkeley National Laboratory**, Berkeley, CA
> Center for Computational Sciences and Engineering (*https://ccse.lbl.gov*)
> *Supervisor:* Dr. John Bell
> *Research:* Particle, continuum and hybrid algorithms for fluctuating hydrodynamics [33, 31, 28]

August 2006 - July 2009
> ***Distinguished Lawrence Postdoctoral Fellow***
> **Lawrence Livermore National Laboratory**, Livermore, CA
> High Performance Computational Materials Science and Chemistry Group
> *Supervisors*: Dr. Vasily Bulatov and Dr. Berni Alder
> *Research*: Irradiation damage in metals and alloys [32, 29], Hydrodynamics of polymer chains in solution [26, 27, 30], Parallel event-driven Kinetic Monte Carlo algorithms [25]

September 2001 - June 2006
> ***Graduate Assistant in Research***, **Princeton University**, Princeton, NJ
> Princeton Institute for the Science and Technology of Materials
> *Advisor*: Professor Salvatore Torquato, Chemistry Department
> *Research*: Jammed packings of hard particles (primary) [20, 24, 10, 5, 15, 8, 16, 18, 13, 23, 22, 7, 14, 9, 11, 21, 19], Design of multifunctional materials via topology optimization (secondary) [4, 17, 6, 12, 3]

September 1999 - August 2001

Research and Teaching Assistant, **Michigan State University**, East Lansing, MI
Condensed Matter Theory, Department of Physics and Astronomy
Advisor: Professor Phillip M. Duxbury, Department of Physics and Astronomy
Research: Convex network optimization for grain-boundary materials [2, 1]
Duties: Teaching assistant for Physics Computations and Computational Physics

4 Teaching

Undergraduate — **ODE**s (Fall 2012), **PDE**s (Fall 2022, Spring 2020, 2018, 2016), **Numerical Analysis** (Spring 2021), co-taught Physics Computations (MSU, 2000)

Graduate — **Scientific Computing** (Fall 2020, 2019, 2015, and Spring 2021, 2011), **Numerical Methods** I (Fall 2014, 2010) and II (Spring 2019, 2023), developed advanced topics courses on **Computational PDEs** (Spring 2021), **Written and Oral Presentation** (Spring 2018), **Computational Fluid Dynamics** (Fall 2018, 2016, 2014 and Spring 2013), and **Coarse-Grained Modeling of Materials** (Fall 2013, 2011)

5 Mentoring

I am the Diversity, Equity, and Inclusion (DEI) coordinator for the Courant Institute at NYU, and the faculty coordinator for the DEI graduate-student reading group.

Undergraduate — Mentored an undergraduate research projects that won Senior Thesis Prize at Princeton, and mentored 8 summer research projects as well as 3 NYU MRSEC REU students at NYU/Courant. Most of these students have since gone on to Ph.D. studies at top programs (Berkeley, UT Austin, Urbana, Courant, etc.) or already obtained their Ph.D. **Co-organized** (with Miranda Holmes-Cerfon until Summer of 2022) **Applied Math Summer Research Program** and **weekly meetings** of modeling and simulation group for 6 years (2018-2023) at Courant.

Graduate — Mentored and supervised graduate 2 graduate students before Courant, co-advised 2 visiting graduate students at Courant, supervised 4 masters thesis at Courant; most of the supervised students continued to Ph.D. studies. Advised or co-advised 4 Ph.D. thesis at Courant, and co-advised 1 Ph.D. thesis at Northwestern.

Postdoctoral — Supervised 6 postdoctoral researchers at Courant, as well as 4 Courant Instructors.

6 Selected Presentations and Conferences

- **Plenary talk** at the Canadian Applied and Industrial Mathematics Society meeting in Kelowna, BC, Canada, June 2022.
- **Co-organized** CECAM workshop on **Complex Suspensions** in Bilbao, Spain, May 2022.
- **CSE09/13/15/17/19/21** SIAM Conference on Computational Science and Engineering (Miami, Boston, Salt Lake, Atlanta, Spokane, virtual). Organized or co-organized minisymposia on hydrodynamics at small scales.
- **Plenary mini course** on "Fluctuating hydrodynamics and coarse-graining" at the First Berlin-Leipzig Workshop on Fluctuating Hydrodynamics, Berlin, August 2019.
- **Invited lecture** on "Brownian HydroDynamics of Colloidal Suspensions" at the Summer School on Particulate Suspensions, MPI Magdeburg, August 2019.
- **ICIAM19** International Congress on Industrial and Applied Mathematics, Valencia, Spain, July 2019, organized minisymposium on Complex Fluids at Small Scales.
- **MMS10/13/16** SIAM Conference on Mathematical Aspects of Materials Science (Philadelphia). Organized or co-organized minisymposia on Multiscale Computation of Fluctuating Hydrodynamics and Microscale Mechanics.
- **Plenary talk** at CECAM workshop Molecular hydrodynamics meets fluctuating hydrodynamics, 10-14 May 2015, Madrid, Spain.
- **Plenary talk** at 11th International Meeting on Thermodiffusion (IMT11), Bayonne, France, June 2014, as well as IMT12, Madrid, May 2016.

- **Plenary speaker**, AMS von Neumann Symposium on Multimodel and Multialgorithm Coupling for Multiscale Problems, July 4-7, 2011 Snowbird, Utah, USA.

7 Publications

[1]   A. Donev, J. Rockwell, and D. ben Avraham. Generalized von smoluchowski model of reaction rates, with reacting particles and a mobile trap. *J. Stat. Phys.*, 95(1-2):97–112, 1999.

[2]   A. Donev, C. E. Musolff, and P. M. Duxbury. Random manifolds in non-linear resistor networks: applications to varistors and superconductors. *J. Phys. A: Math. Gen.*, 35:L327–L333, 2002.

[3]   S. Torquato, S. Hyun, and A. Donev. Multifunctional optimal composite microstructures: Simultaneous transport of heat and electricity. *Phys. Rev. Lett.*, 89(26):266601, 2002.

[4]   A. Donev and S. Torquato. Energy-Efficient Actuation in Infinite Lattice Structures. *J. Mech. Phys. Solids*, 51(8):1459–1475, 2003.

[5]   S. Torquato, A. Donev, and F. H. Stillinger. Breakdown of Elasticity Theory for Jammed Hard-Particle Packings: Conical Nonlinear Constitutive Theory. *Int. J. Solids Structures*, 40(25):7143 – 7153, 2003.

[6]   S. Torquato, S. Hyun, and A. Donev. Optimal design of manufacturable three-dimensional composites with multifunctional characteristics. *J. Appl. Phys.*, 94(9):5748–5755, 2003.

[7]   A. Donev, I. Cisse, D. Sachs, E. A. Variano, F. H. Stillinger, R. Connelly, S. Torquato, and P. M. Chaikin. Improving the Density of Jammed Disordered Packings using Ellipsoids. *Science*, 303:990–993, 2004.

[8]   A. Donev, F. H. Stillinger, P. M. Chaikin, and S. Torquato. Unusually Dense Crystal Packings of Ellipsoids. *Phys. Rev. Lett.*, 92:255506, 2004.

[9]   A. Donev, S. Torquato, F. H. Stillinger, and R. Connelly. A Linear Programming Algorithm to Test for Jamming in Hard-Sphere Packings. *J. Comp. Phys.*, 197(1):139–166, 2004.

[10]   A. Donev, S. Torquato, F. H. Stillinger, and R. Connelly. Comment on "Jamming at zero temperature and zero applied stress: The epitome of disorder". *Phys. Rev. E*, 70:043301, 2004.

[11]   A. Donev, S. Torquato, F. H. Stillinger, and R. Connelly. Jamming in Hard Sphere and Disk Packings. *J. App. Phys.*, 95(3):989, 2004.

[12]   S. Torquato and A. Donev. Minimal surfaces and multifunctionality. *Proc. Royal Soc. London*, 460(2047):1849 – 1856, 2004.

[13]   A. Donev, S. Torquato, and F. H. Stillinger. Neighbor List Collision-Driven Molecular Dynamics Simulation for Nonspherical Particles: I. Algorithmic Details II. Applications to Ellipses and Ellipsoids. *J. Comp. Phys.*, 202(2):737–764, 765–793, 2005. code available at http://cims.nyu.edu/~donev/Packing/PackLSD/Instructions.html.

[14]   A. Donev, S. Torquato, and F. H. Stillinger. Pair Correlation Function Characteristics of Nearly Jammed Disordered and Ordered Hard-Sphere Packings. *Phys. Rev. E*, 71:011105, 2005.

[15]   A. Donev, S. Torquato, and F. H. Stillinger. Unexpected Density Fluctuations in Jammed Disordered Sphere Packings. *Phys. Rev. Lett.*, 95(9):090604, 2005.

[16]   W. Man, A. Donev, F. H. Stillinger, M. Sullivan, William B. Russel, D. Heeger, S. Inati, S. Torquato, and P. M. Chaikin. Experiments on Random Packing of Ellipsoids. *Phys. Rev. Lett.*, 94:198001, 2005.

[17]   S. Torquato, A. Donev, A. G. Evans, and C. J. Brinker. Manufacturable extremal low-dielectric, high-stiffness porous materials. *J. Appl. Phys.*, 97:124103, 2005.

[18]   P. M. Chaikin, A. Donev, W. Man, F. H. Stillinger, and S. Torquato. Some Observations on the Random Packing of Hard Ellipsoids. *Ind. Eng. Chem. Res.*, 45(21):6960–6965, 2006.

[19]   A. Donev, J. Burton, F. H. Stillinger, and S. Torquato. Tetratic Order in the Phase Behavior of a Hard-Rectangle System. *Phys. Rev. B*, 73:054109, 2006.

[20]   A. Donev, F. H. Stillinger, and S. Torquato. Do Binary Hard Disks Exhibit an Ideal Glass Transition? *Phys. Rev. Lett.*, 96(22):225502, 2006.

[21]   M. Skoge, A. Donev, F. H. Stillinger, and S. Torquato. Packing Hyperspheres in High-Dimensional Euclidean Spaces. *Phys. Rev. E*, 74:041127, 2006.

[22]   A. Donev, R. Connelly, F. H. Stillinger, and S. Torquato. Underconstrained Jammed Packings of Hard Ellipsoids. *Phys. Rev. E*, 75:051304, 2007.

[23]   A. Donev, F. H. Stillinger, and S. Torquato. Calculating the Free Energy of Nearly Jammed Hard-Particle Packings Using Molecular Dynamics. *J. Comp. Phys.*, 225:509–527, 2007.

[24]   A. Donev, F. H. Stillinger, and S. Torquato. Configurational Entropy of Binary Hard-Disk Glasses: Nonexistence of an Ideal Glass Transition. *J. Chem. Phys*, 127:124509, 2007.

[25]   A. Donev. Asynchronous event-driven particle algorithms. *SIMULATION: Transactions of The Society for Modeling and Simulation International*, 85(4):229–242, 2008.

[26]   A. Donev, A. L. Garcia, and B. J. Alder. Stochastic Event-Driven Molecular Dynamics. *J. Comp. Phys.*, 227(4):2644–2665, 2008.

[27]   A. Donev, A. L. Garcia, and B. J. Alder. Stochastic Hard-Sphere Dynamics for Hydrodynamics of Non-Ideal Fluids. *Phys. Rev. Lett*, 101:075902, 2008.

[28]   A. Donev, A. L. Garcia, and B. J. Alder. A Thermodynamically-Consistent Non-Ideal Stochastic Hard-Sphere Fluid. *J. of Statistical Mechanics: Theory and Experiment*, 2009(11):P11008, 2009.

[29]   T. Oppelstrup, V. V. Bulatov, A. Donev, M. H. Kalos, G. H. Gilmer, and B. Sadigh. First-Passage Kinetic Monte Carlo Method. *Phys. Rev. E*, 80(6):066701, 2009.

[30]   Y. Zhang, A. Donev, T. Weisgraber, B. J. Alder, M. D. Graham, and J. J. de Pablo. Tethered DNA Dynamics in Shear Flow. *J. Chem. Phys*, 130(23):234902, 2009.

[31]   A. Donev, J. B. Bell, A. L. Garcia, and B. J. Alder. A hybrid particle-continuum method for hydrodynamics of complex fluids. *SIAM J. Multiscale Modeling and Simulation*, 8(3):871–911, 2010.

[32]   A. Donev, V. V. Bulatov, T. Oppelstrup, G. H. Gilmer, B. Sadigh, and M. H. Kalos. A First-Passage Kinetic Monte Carlo Algorithm for Complex Diffusion-Reaction Systems. *J. Comp. Phys.*, 229(9):3214–3236, 2010.

[33]   A. Donev, E. Vanden-Eijnden, A. L. Garcia, and J. B. Bell. On the Accuracy of Finite-Volume Schemes for Fluctuating Hydrodynamics. *Communications in Applied Mathematics and Computational Science*, 5(2):149–197, 2010.

[34]   A. Donev, A. L. Garcia, Anton de la Fuente, and J. B. Bell. Diffusive Transport by Thermal Velocity Fluctuations. *Phys. Rev. Lett.*, 106(20):204501, 2011.

[35]   A. Donev, A. L. Garcia, Anton de la Fuente, and J. B. Bell. Enhancement of Diffusive Transport by Nonequilibrium Thermal Fluctuations. *J. of Statistical Mechanics: Theory and Experiment*, 2011:P06014, 2011.

[36]   F. Balboa Usabiaga, J. B. Bell, R. Delgado-Buscalioni, A. Donev, T. G. Fai, B. E. Griffith, and C. S. Peskin. Staggered Schemes for Fluctuating Hydrodynamics. *SIAM J. Multiscale Modeling and Simulation*, 10(4):1369–1408, 2012.

[37]   A. Pal Singh Bhalla, B. E. Griffith, N. A. Patankar, and A. Donev. A Minimally-Resolved Immersed Boundary Model for Reaction-Diffusion Problems. *J. Chem. Phys.*, 139(21):214112, 2013.

[38]   S. Delong, B. E. Griffith, E. Vanden-Eijnden, and A. Donev. Temporal Integrators for Fluctuating Hydrodynamics. *Phys. Rev. E*, 87(3):033302, 2013.

[39]   F. Balboa Usabiaga, X. Xie, R. Delgado-Buscalioni, and A. Donev. The Stokes-Einstein Relation at Moderate Schmidt Number. *J. Chem. Phys.*, 139(21):214113, 2013.

[40]   K. Balakrishnan, A. L. Garcia, A. Donev, and J. B. Bell. Fluctuating hydrodynamics of multispecies nonreactive mixtures. *Phys. Rev. E*, 89:013017, 2014.

[41]   N. Bou-Rabee, A. Donev, and E. Vanden-Eijnden. Metropolis Integration Schemes for Self-Adjoint Diffusions. *SIAM J. Multiscale Modeling and Simulation*, 12(2):781–831, 2014.

[42]   M. Cai, A. J. Nonaka, J. B. Bell, B. E. Griffith, and A. Donev. Efficient Variable-Coefficient Finite-Volume Stokes Solvers. *Comm. in Comp. Phys. (CiCP)*, 16(5):1263–1297, 2014.

[43]   A. Chaudhri, J. B. Bell, A. L. Garcia, and A. Donev. Modeling multiphase flow using fluctuating hydrodynamics. *Phys. Rev. E*, 90:033014, 2014.

[44]   S. Delong, Y. Sun, B. E. Griffith, E. Vanden-Eijnden, and A. Donev. Multiscale temporal integrators for fluctuating hydrodynamics. *Phys. Rev. E*, 90:063312, 2014. Software available at `https://github.com/stochasticHydroTools/MixingIBAMR`.

[45]   S. Delong, F. Balboa Usabiaga, R. Delgado-Buscalioni, B. E. Griffith, and A. Donev. Brownian dynamics without Green's functions. *J. Chem. Phys.*, 140(13):134110, 2014. Software available at `https://github.com/stochasticHydroTools/FIB`.

[46]   A. Donev, T. G. Fai, and E. Vanden-Eijnden. A reversible mesoscopic model of diffusion in liquids: from giant fluctuations to Fick's law. *Journal of Statistical Mechanics: Theory and Experiment*, 2014(4):P04004, 2014.

[47]   A. Donev, A. J. Nonaka, Y. Sun, T. G. Fai, A. L. Garcia, and J. B. Bell. Low Mach Number Fluctuating Hydrodynamics of Diffusively Mixing Fluids. *Communications in Applied Mathematics and Computational Science*, 9(1):47–105, 2014.

[48]   A. Donev and E. Vanden-Eijnden. Dynamic Density Functional Theory with hydrodynamic interactions and fluctuations. *J. Chem. Phys.*, 140(23):234115, 2014.

[49]   F. Balboa Usabiaga, R. Delgado-Buscalioni, B. E. Griffith, and A. Donev. Inertial Coupling Method for particles in an incompressible fluctuating fluid. *Comput. Methods Appl. Mech. Engrg.*, 269:139–172, 2014. Code available at `https://github.com/fbusabiaga/fluam`.

[50]   A. K. Bhattacharjee, K. Balakrishnan, A. L. Garcia, J. B. Bell, and A. Donev. Fluctuating hydrodynamics of multispecies reactive mixtures. *J. Chem. Phys.*, 142(22):224107, 2015.

[51]   J.A. de la Torre, P. Español, and A. Donev. Finite element discretization of non-linear diffusion equations with thermal fluctuations. *J. Chem. Phys.*, 142(9):094115, 2015.

[52]   S. Delong, F. Balboa Usabiaga, and A. Donev. Brownian dynamics of confined rigid bodies. *J. Chem. Phys.*, 143(14):144107, 2015. Software available at `https://github.com/stochasticHydroTools/RigidMultiblobsWall`.

[53]   A. Donev, A. J. Nonaka, A. K. Bhattacharjee, A. L. Garcia, and J. B. Bell. Low Mach Number Fluctuating Hydrodynamics of Multispecies Liquid Mixtures. *Physics of Fluids*, 27(3):037103, 2015.

[54]   P. Español and A. Donev. Coupling a nano-particle with isothermal fluctuating hydrodynamics: Coarse-graining from microscopic to mesoscopic dynamics. *J. Chem. Phys.*, 143(23), 2015.

[55]   C. Giraudet, H. Bataller, Y. Sun, A. Donev, J. M. Ortiz de Zarate, and F. Croc-
         colo.   Slowing-down of non-equilibrium concentration fluctuations in confine-
         ment.   *EPL (Europhysics Letters)*, 111(6):60013, 2015.   Software available at
         `https://github.com/stochasticHydroTools/MixingIBAMR`.

[56]   A. J. Nonaka, Y. Sun, J. B. Bell, and A. Donev. Low Mach Number Fluctuating
         Hydrodynamics of Binary Liquid Mixtures. *Communications in Applied Mathematics and
         Computational Science*, 10(2):163–204, 2015.

[57]   A. Donev R. Cerbino, Y. Sun and A. Vailati. Dynamic scaling for the growth of non-
         equilibrium fluctuations during thermophoretic diffusion in microgravity. *Scientific Reports*, 5,
         2015. Software available at `https://github.com/stochasticHydroTools/MixingIBAMR`.

[58]   P. Baaske, H. Bataller, M. Braibanti, M. Carpineti, R. Cerbino, F. Croccolo, A. Donev,
         W. Köhler, J. M. Ortiz de Zárate, and Alberto Vailati. The NEUF-DIX Space Project - Non-
         EquilibriUm Fluctuations during DIffusion in compleX liquids. *Eur. Phys. J. E*, 39:119, 2016.

[59]   F. Balboa Usabiaga, B. Kallemov, B. Delmotte, A. P. S. Bhalla, B. E. Grif-
         fith, and A. Donev. Hydrodynamics of suspensions of passive and active rigid
         particles: a rigid multiblob approach.   *Communications in Applied Mathe-
         matics and Computational Science*, 11(2):217–296, 2016.   Software available at
         `https://github.com/stochasticHydroTools/RigidMultiblobsWall`.

[60]   B. Kallemov, A. Pal Singh Bhalla, B. E. Griffith, and A. Donev.   An im-
         mersed boundary method for rigid bodies.   *Communications in Applied Math-
         ematics and Computational Science*, 11(1):79–141, 2016.   Software available at
         `https://github.com/stochasticHydroTools/RigidBodyIB`.

[61]   Jean-Philippe Péraud, Andy Nonaka, Anuj Chaudhri, John B. Bell, Aleksandar
         Donev, and Alejandro L. Garcia. Low mach number fluctuating hydrodynam-
         ics for electrolytes.   *Phys. Rev. Fluids*, 1:074103, 2016.   Software available at
         `https://github.com/AMReX-FHD/LowMachFHD`.

[62]   Y. Bao, A. Donev, B. E. Griffith, D. M. McQueen, and C. S. Peskin. An Immersed Boundary
         Method with Divergence-Free Velocity Interpolation and Force Spreading. *Journal of
         Computational Physics*, 347:183–206, 2017.

[63]   Blaise Delmotte, Aleksandar Donev, Michelle Driscoll, and Paul Chaikin. Minimal model for
         a hydrodynamic fingering instability in microroller suspensions. *Phys. Rev. Fluids*, 2:114301,
         2017.

[64]   Blaise Delmotte, Michelle Driscoll, Paul Chaikin, and Aleksandar Donev. Hydrodynamic
         shocks in microroller suspensions. *Phys. Rev. Fluids*, 2:092301, 2017.

[65]   Michelle Driscoll, Blaise Delmotte, Mena Youssef, Stefano Sacanna, Aleksandar Donev,
         and Paul Chaikin. Unstable fronts and motile structures formed by microrollers. *Nature
         Physics*, 13:375–379, 2017.

[66]   A. M. Fiore, F. Balboa Usabiaga, A. Donev, and J. W. Swan. Rapid sampling of stochastic
         displacements in Brownian dynamics simulations. *J. Chem. Phys.*, 146(12):124116, 2017.
         Software available at `https://github.com/stochasticHydroTools/PSE`.

[67]   C. Kim, A. J. Nonaka, A. L. Garcia, J. B. Bell, and A. Donev. Stochastic simulation of
         reaction-diffusion systems: A fluctuating-hydrodynamics approach. *J. Chem. Phys.*, 146(12),
         2017. Software available at `https://github.com/BoxLib-Codes/FHD_ReactDiff`.

[68]   Jean-Philippe Péraud, Andrew J. Nonaka, John B. Bell, Aleksandar Donev, and Alejandro L.
         Garcia. Fluctuation-enhanced electric conductivity in electrolyte solutions. *Proc. Natl.
         Acad. Sci. U.S.A.*, 114(41):10829–10833, 2017.

[69] Brennan Sprinkle, Florencio Balboa Usabiaga, Neelesh A. Patankar, and Aleksandar Donev. Large scale Brownian dynamics of confined suspensions of rigid particles. *J. Chem. Phys.*, 147(24):244103, 2017. Software available at `https://github.com/stochasticHydroTools/RigidMultiblobsWall`.

[70] Florencio Balboa Usabiaga, Blaise Delmotte, and Aleksandar Donev. Brownian dynamics of confined suspensions of active microrollers. *J. Chem. Phys.*, 146(13):134104, 2017. Software available at `https://github.com/stochasticHydroTools/RigidMultiblobsWall`.

[71] Y. Bao, M. Rachh, E. E. Keaveny, L. Greengard, and A. Donev. A fluctuating boundary integral method for Brownian suspensions. *J. Comp. Phys.*, 374:1094 – 1119, 2018.

[72] C. Kim, A. J. Nonaka, A. L. Garcia, J. B. Bell, and A. Donev. Fluctuating hydrodynamics of reactive liquid mixtures. *J. Chem. Phys.*, 149(8):084113, 2018.

[73] R. P. Peláez, F. Balboa Usabiaga, S. Panzuela, Q. Xiao, R. Delgado-Buscalioni, and A. Donev. Hydrodynamic fluctuations in quasi-two dimensional diffusion. *J. Stat. Mech.*, page 063207, 2018. Software available at `https://github.com/fbusabiaga/fluam` and `https://github.com/stochasticHydroTools/FHDq2D`.

[74] Aleksandar Donev, Alejandro L. Garcia, Jean-Philippe Péraud, Andrew J. Nonaka, and John B. Bell. Fluctuating Hydrodynamics and Debye-Hückel-Onsager Theory for Electrolytes. *Current Opinion in Electrochemistry*, 13:1 – 10, 2019.

[75] Aleksandar Donev, Andrew J. Nonaka, Changho Kim, Alejandro L. Garcia, and John B. Bell. Fluctuating hydrodynamics of electrolytes at electroneutral scales. *Phys. Rev. Fluids*, 4:043701, 2019. Software available at `https://github.com/AMReX-FHD/LowMachFHD`.

[76] Brennan Sprinkle, Aleksandar Donev, Amneet Pal Singh Bhalla, and Neelesh Patankar. Brownian dynamics of fully confined suspensions of rigid particles without Green's functions. *J. Chem. Phys.*, 150(16):164116, 2019.

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