Dmitry A Fedosov

List of Publications by Year
in descending order

83 papers	4,952 citations	94415 37 h-index	95259 68 g-index
91 all docs	91 docs citations	91 times ranked	3750 citing authors

#	Article	IF	Citations
1	A Multiscale Red Blood Cell Model with Accurate Mechanics, Rheology, and Dynamics. Biophysical Journal, 2010, 98, 2215-2225.	0.5	460
2	Predicting human blood viscosity in silico. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 11772-11777.	7.1	278
3	Equilibrium physics breakdown reveals the active nature of red blood cell flickering. Nature Physics, 2016, 12, 513-519.	16.7	231
4	Margination of micro- and nano-particles in blood flow and its effect on drug delivery. Scientific Reports, 2014, 4, 4871.	3.3	228
5	Systematic coarse-graining of spectrin-level red blood cell models. Computer Methods in Applied Mechanics and Engineering, 2010, 199, 1937-1948.	6.6	227
6	Blood Flow and Cell-Free Layer in Microvessels. Microcirculation, 2010, 17, 615-628.	1.8	207
7	Multiscale modeling of blood flow: from single cells to blood rheology. Biomechanics and Modeling in Mechanobiology, 2014, 13, 239-258.	2.8	200
8	Red cellsâ€™ dynamic morphologies govern blood shear thinning under microcirculatory flow conditions. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 13289-13294.	7.1	179
9	Quantifying the biophysical characteristics of <i>Plasmodium-falciparum</i> -parasitized red blood cells in microcirculation. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 35-39.	7.1	165
10	Influence of particle size and shape on their margination and wall-adhesion: implications in drug delivery vehicle design across nano-to-micro scale. Nanoscale, 2018, 10, 15350-15364.	5.6	162
11	Deformation and dynamics of red blood cells in flow through cylindrical microchannels. Soft Matter, 2014, 10, 4258-4267.	2.7	147
12	Active particles induce large shape deformations in giant lipid vesicles. Nature, 2020, 586, 52-56.	27.8	116
13	Margination of White Blood Cells in Microcapillary Flow. Physical Review Letters, 2012, 108, 028104.	7.8	111
14	Multiscale Modeling of Red Blood Cell Mechanics and Blood Flow in Malaria. PLoS Computational Biology, 2011, 7, e1002270.	3.2	98
15	White blood cell margination in microcirculation. Soft Matter, 2014, 10, 2961-2970.	2.7	97
16	Deterministic Lateral Displacement: Challenges and Perspectives. ACS Nano, 2020, 14, 10784-10795.	14.6	97
17	Triple-decker: Interfacing atomisticâ€“mesoscopicâ€“continuum flow regimes. Journal of Computational Physics, 2009, 228, 1157-1171.	3.8	93
18	Flow-Induced Transitions of Red Blood Cell Shapes under Shear. Physical Review Letters, 2018, 121, 118103.	7.8	93

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19	Microvascular blood flow resistance: Role of red blood cell migration and dispersion. Microvascular Research, 2015, 99, 57-66.	2.5	90
20	Velocity limit in DPD simulations of wall-bounded flows. Journal of Computational Physics, 2008, 227, 2540-2559.	3.8	88
21	Wall Shear Stress-Based Model for Adhesive Dynamics of Red Blood Cells in Malaria. Biophysical Journal, 2011, 100, 2084-2093.	0.5	84
22	Transient Heat Transfer and Gas Flow in a MEMS-Based Thruster. Journal of Microelectromechanical Systems, 2006, 15, 181-194.	2.5	79
23	Blood flow in small tubes: quantifying the transition to the non-continuum regime. Journal of Fluid Mechanics, 2013, 722, 214-239.	3.4	76
24	Computational Biorheology of Human Blood Flow in Health and Disease. Annals of Biomedical Engineering, 2014, 42, 368-387.	2.5	73
25	Dynamical and rheological properties of soft colloid suspensions. Current Opinion in Colloid and Interface Science, 2014, 19, 594-610.	7.4	68
26	Behavior of rigid and deformable particles in deterministic lateral displacement devices with different post shapes. Journal of Chemical Physics, 2015, 143, 243145.	3.0	67
27	Understanding particle margination in blood flow â€" A step toward optimized drug delivery systems. Medical Engineering and Physics, 2016, 38, 2-10.	1.7	67
28	Steady shear rheometry of dissipative particle dynamics models of polymer fluids in reverse Poiseuille flow. Journal of Chemical Physics, 2010, 132, 144103.	3.0	65
29	Smoothed dissipative particle dynamics with angular momentum conservation. Journal of Computational Physics, 2015, 281, 301-315.	3.8	64
30	Performance Analysis of Microthrusters Based on Coupled Thermal-Fluid Modeling and Simulation. Journal of Propulsion and Power, 2005, 21, 95-101.	2.2	59
31	Sorting cells by their dynamical properties. Scientific Reports, 2016, 6, 34375.	3.3	58
32	Predicting dynamics and rheology of blood flow: A comparative study of multiscale and low-dimensional models of red blood cells. Microvascular Research, 2011, 82, 163-170.	2.5	57
33	Time-dependent and outflow boundary conditions for Dissipative Particle Dynamics. Journal of Computational Physics, 2011, 230, 3765-3779.	3.8	51
34	High-Throughput Microfluidic Characterization of Erythrocyte Shapes and Mechanical Variability. Biophysical Journal, 2019, 117, 14-24.	0.5	46
35	Dissipative particle dynamics simulation of depletion layer and polymer migration in micro- and nanochannels for dilute polymer solutions. Journal of Chemical Physics, 2008, 128, 144903.	3.0	42
36	Margination and stretching of von Willebrand factor in the blood stream enable adhesion. Scientific Reports, 2017, 7, 14278.	3.3	42

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37	Semidilute solutions of ultra-soft colloids under shear flow. Soft Matter, 2012, 8, 4109.	2.7	38
38	Modeling microcirculatory blood flow: current state and future perspectives. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2016, 8, 157-168.	6.6	35
39	Hydrodynamic interactions for single dissipative-particle-dynamics particles and their clusters and filaments. Physical Review E, 2008, 78, 046706.	2.1	33
40	Multiscale Modeling of Blood Flow in Cerebral Malaria. , 2010, , .		33
41	A new computational paradigm in multiscale simulations. , 2011, , .		29
42	Parallel multiscale simulations of a brain aneurysm. Journal of Computational Physics, 2013, 244, 131-147.	3.8	28
43	Sharp-edged geometric obstacles in microfluidics promote deformability-based sorting of cells. Physical Review Fluids, 2019, 4, .	2.5	27
44	Effect of spectrin network elasticity on the shapes of erythrocyte doublets. Soft Matter, 2018, 14, 6278-6289.	2.7	26
45	A lattice Boltzmann fictitious domain method for modeling red blood cell deformation and multipleâ€cell hydrodynamic interactions in flow. International Journal for Numerical Methods in Fluids, 2013, 72, 895-911.	1.6	25
46	Importance of Erythrocyte Deformability for the Alignment of Malaria Parasite upon Invasion. Biophysical Journal, 2019, 117, 1202-1214.	0.5	21
47	The Erythrocyte Sedimentation Rate and Its Relation to Cell Shape and Rigidity of Red Blood Cells from Chorea-Acanthocytosis Patients in an Off-Label Treatment with Dasatinib. Biomolecules, 2021, 11, 727.	4.0	21
48	Effect of fluidâ€“colloid interactions on the mobility of a thermophoretic microswimmer in non-ideal fluids. Soft Matter, 2015, 11, 6703-6715.	2.7	20
49	Static and dynamic properties of smoothed dissipative particle dynamics. Journal of Computational Physics, 2018, 356, 303-318.	3.8	20
50	Conformational and dynamical properties of ultra-soft colloids in semi-dilute solutions under shear flow. Journal of Physics Condensed Matter, 2012, 24, 464103.	1.8	18
51	Acanthocyte Sedimentation Rate as a Diagnostic Biomarker for Neuroacanthocytosis Syndromes: Experimental Evidence and Physical Justification. Cells, 2021, 10, 788.	4.1	18
52	Static and dynamic light scattering by red blood cells: A numerical study. PLoS ONE, 2017, 12, e0176799.	2.5	14
53	Modeling the cleavage of von Willebrand factor by ADAMTS13 protease in shear flow. Medical Engineering and Physics, 2017, 48, 14-22.	1.7	13
54	Microfluidic Particle Sorting in Concentrated Erythrocyte Suspensions. Physical Review Applied, 2019, 12, .	3.8	13

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55	Deformation and dynamics of erythrocytes govern their traversal through microfluidic devices with a deterministic lateral displacement architecture. Biomicrofluidics, 2019, 13, 044106.	2.4	12
56	Effect of cytosol viscosity on the flow behavior of red blood cell suspensions in microvessels. Microcirculation, 2021, 28, e12668.	1.8	12
57	Erythrocyte Sedimentation: Collapse of a High-Volume-Fraction Soft-Particle Gel. Physical Review Letters, 2022, 128, 088101.	7.8	12
58	Dense brushes of stiff polymers or filaments in fluid flow. Europhysics Letters, 2015, 109, 68001.	2.0	11
59	Importance of Viscosity Contrast for the Motion of Erythrocytes in Microcapillaries. Frontiers in Physics, 2021, 9, .	2.1	11
60	Erythrocyte sedimentation: Effect of aggregation energy on gel structure during collapse. Physical Review E, 2022, 105, 024610.	2.1	11
61	Coarse-grained red blood cell model with accurate mechanical properties, rheology and dynamics. , 2009, 2009, 4266-9.		9
62	Tightly Coupled Atomistic-Continuum Simulations of Brain Blood Flow on Petaflop Supercomputers. Computing in Science and Engineering, 2012, 14, 58-67.	1.2	9
63	State diagram for wall adhesion of red blood cells in shear flow: from crawling to flipping. Soft Matter, 2019, 15, 5511-5520.	2.7	8
64	Quasi-Classical Trajectory Modeling of OH Production in Direct Simulation Monte Carlo. Journal of Thermophysics and Heat Transfer, 2005, 19, 235-244.	1.6	7
65	Mesoscale hydrodynamics simulations of particle suspensions under shear flow: From hard to ultrasoft colloids. European Physical Journal: Special Topics, 2013, 222, 2773-2786.	2.6	7
66	Stochastic bond dynamics facilitates alignment of malaria parasite at erythrocyte membrane upon invasion. ELife, 2020, 9, .	6.0	7
67	Flow-induced adhesion of shear-activated polymers to a substrate. Journal of Physics Condensed Matter, 2018, 30, 064001.	1.8	4
68	Competing effects of inertia, sheet elasticity, fluid compressibility, and viscoelasticity on the synchronization of two actuated sheets. Physics of Fluids, 2021, 33, 043109.	4.0	4
69	Hemostasis is a highly multiscale process. Physics of Life Reviews, 2018, 26-27, 108-109.	2.8	3
70	Dissipative particle dynamics with energy conservation: Isoenergetic integration and transport properties. Journal of Chemical Physics, 2020, 152, 064112.	3.0	3
71	Effect of malaria parasite shape on its alignment at erythrocyte membrane. ELife, 2021, 10, .	6.0	3
72	Stability of heterogeneous parallel-bond adhesion clusters under load. Physical Review Research, 2020, 2, .	3.6	3

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73	Multiscale modelling of hematologic disorders. Modeling, Simulation and Applications, 2012, , 289-331.	1.3	2
74	In silico modeling of malaria and sickle-cell disease. Drug Discovery Today: Disease Models, 2015, 16, 17-22.	1.2	2
75	Multiscale Modeling of Malaria-Infected Red Blood Cells. , 2018, , 1-24.		2
76	High Troughput Microfluidic Characterization of Erythrocyte Shapes and Mechanical Variability. Biophysical Journal, 2019, 116, 123a-124a.	0.5	2
77	Simulating membranes, vesicles, and cells. , 2019, , 169-193.		2
78	Reverse Poiseuille Flow: the Numerical Viscometer. AIP Conference Proceedings, 2008, , .	0.4	1
79	Blood flow. , 2011, , .		1
80	Multiscale Modeling of Malaria-Infected Red Blood Cells. , 2020, , 2625-2648.		1
81	Dissipative Particle Dynamics Simulation of Polymer- and Cell-Wall Depletion in Micro-Channels. AIP Conference Proceedings, 2008, , .	0.4	0
82	Red Blood Cell Membrane Fluctuations and their Mechanisms: Passive Versus Active. Biophysical Journal, 2013, 104, 427a.	0.5	0
83	10.1063/1.3366658.1. , 2010, , .		0