Ilia Roisman

List of Publications by Year
in descending order

131	5,882	81743	82410
papers	citations	39 h-index	72 g-index

137	137	137	3552
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Drop impact onto a liquid layer of finite thickness: Dynamics of the cavity evolution. Physical Review E, 2009, 79, 036306.	0.8	443
2	Dynamic contact angle of spreading droplets: Experiments and simulations. Physics of Fluids, 2005, 17, 062103.	1.6	374
3	Normal impact of a liquid drop on a dry surface: model for spreading and receding. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2002, 458, 1411-1430.	1.0	345
4	Inertia dominated drop collisions. II. An analytical solution of the Navierâ€“Stokes equations for a spreading viscous film. Physics of Fluids, 2009, 21, .	1.6	317
5	Drop collisions with simple and complex surfaces. Current Opinion in Colloid and Interface Science, 2011, 16, 292-302.	3.4	246
6	Impact of a drop onto a wetted wall: description of crown formation and propagation. Journal of Fluid Mechanics, 2002, 472, 373-397.	1.4	190
7	From drop impact physics to spray cooling models: a critical review. Experiments in Fluids, 2018, 59, 1.	1.1	185
8	Inertia dominated drop collisions. I. On the universal flow in the lamella. Physics of Fluids, 2009, 21, .	1.6	167
9	Investigations on the impact of a drop onto a small spherical target. Physics of Fluids, 2007, 19, 032102.	1.6	154
10	Spray impact: Rim transverse instability initiating fingering and splash, and description of a secondary spray. Physics of Fluids, 2006, 18, 102104.	1.6	152
11	Characterization of super liquid-repellent surfaces. Current Opinion in Colloid and Interface Science, 2014, 19, 343-354.	3.4	151
12	Effect of ambient pressure on penetration of a diesel spray. International Journal of Multiphase Flow, 2007, 33, 904-920.	1.6	125
13	Drop Impact, Spreading, Splashing, and Penetration into Electrospun Nanofiber Mats. Langmuir, 2010, 26, 9516-9523.	1.6	117
14	Drop impact onto a dry surface: Role of the dynamic contact angle. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2008, 322, 183-191.	2.3	115
15	Multiple Drop Impact onto a Dry Solid Substrate. Journal of Colloid and Interface Science, 2002, 256, 396-410.	5.0	105
16	Heat transfer in the film boiling regime: Single drop impact and spray cooling. International Journal of Heat and Mass Transfer, 2017, 110, 34-42.	2.5	91
17	Drop splashing induced by target roughness and porosity: The size plays no role. Advances in Colloid and Interface Science, 2015, 222, 615-621.	7.0	89
18	Thermal atomisation of a liquid drop after impact onto a hot substrate. Journal of Fluid Mechanics, 2018, 842, 87-101.	1.4	82

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19	Crater evolution after the impact of a drop onto a semi-infinite liquid target. Physical Review E, 2010, 82, 036319.	0.8	78
20	Inverse-Leidenfrost phenomenon on nanofiber mats on hot surfaces. Physical Review E, 2011, 84, 036310.	0.8	74
21	Chaotic rotation of triaxial ellipsoids in simple shear flow. Journal of Fluid Mechanics, 1997, 340, 83-100.	1.4	73
22	Penetration of a rigid projectile into an elastic-plastic target of finite thickness. International Journal of Impact Engineering, 1995, 16, 801-831.	2.4	70
23	Fast forced liquid film spreading on a substrate: flow, heat transfer and phase transition. Journal of Fluid Mechanics, 2010, 656, 189-204.	1.4	59
24	Dynamics of inertia dominated binary drop collisions. Physics of Fluids, 2004, 16, 3438-3449.	1.6	53
25	Transient effects in ice nucleation of a water drop impacting onto a cold substrate. Physical Review E, 2017, 95, 022805.	0.8	52
26	On the splashing of high-speed drops impacting a dry surface. Journal of Fluid Mechanics, 2020, 892, .	1.4	52
27	Dynamics of the cavity and the surface film for impingements of single drops on liquid films of various thicknesses. Journal of Colloid and Interface Science, 2010, 350, 336-343.	5.0	51
28	Nonisothermal drop impact and evaporation on polymer nanofiber mats. Physical Review E, 2011, 83, 036305.	0.8	51
29	Droplet-air collision dynamics: Evolution of the film thickness. Physical Review E, 2014, 89, 013023.	0.8	47
30	Ice crystal impact onto a dry solid wall. Particle fragmentation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150399.	1.0	47
31	Oblique penetration of a rigid projectile into an elastic-plastic target. International Journal of Impact Engineering, 1997, 19, 769-795.	2.4	46
32	Normal impact of supercooled water drops onto a smooth ice surface: experiments and modelling. Journal of Fluid Mechanics, 2018, 835, 1087-1107.	1.4	46
33	MODELING OF SPRAY IMPACT ON SOLID SURFACES. Atomization and Sprays, 2000, 10, 387-408.	0.3	45
34	Imaging internal flows in a drying sessile polymer dispersion drop using Spectral Radar Optical Coherence Tomography (SR-OCT). Journal of Colloid and Interface Science, 2013, 395, 287-293.	5.0	44
35	Hybrid Hairy Janus Particles for Anti-Icing and De-Icing Surfaces: Synergism of Properties and Effects. Chemistry of Materials, 2016, 28, 6995-7005.	3.2	44
36	Heat transfer during simultaneous impact of two drops onto a hot solid substrate. International Journal of Heat and Mass Transfer, 2017, 113, 898-907.	2.5	44

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37	Characterization of secondary droplets during thermal atomization regime. Experimental Thermal and Fluid Science, 2018, 98, 516-522.	1.5	44
38	Splash of a drop impacting onto a solid substrate wetted by a thin film of another liquid. Physical Review Fluids, 2018, 3, .	1.0	43
39	Fluctuating flow in a liquid layer and secondary spray created by an impacting spray. International Journal of Multiphase Flow, 2005, 31, 179-200.	1.6	42
40	Drop collision with a hot, dry solid substrate: Heat transfer during nucleate boiling. Physical Review Fluids, 2017, 2, .	1.0	41
41	Inertia dominated flow and heat transfer in liquid drop spreading on a hot substrate. International Journal of Heat and Fluid Flow, 2011, 32, 785-795.	1.1	40
42	Oblique penetration of a rigid projectile into a thick elasticâ€“plastic target: theory and experiment. International Journal of Impact Engineering, 1999, 22, 707-726.	2.4	39
43	On the instability of a free viscous rim. Journal of Fluid Mechanics, 2010, 661, 206-228.	1.4	39
44	Binary collisions of drops of immiscible liquids. Journal of Fluid Mechanics, 2012, 690, 512-535.	1.4	38
45	Influence of solidification on the impact of supercooled water drops onto cold surfaces. Experiments in Fluids, 2015, 56, 1.	1.1	37
46	Dislodging a sessile drop by a high-Reynolds-number shear flow at subfreezing temperatures. Physical Review E, 2015, 92, 023007.	0.8	36
47	Propagation of a kinematic instability in a liquid layer: Capillary and gravity effects. Physical Review E, 2008, 77, 046305.	0.8	35
48	Computations of spontaneous rise of a rivulet in a corner of a vertical square capillary. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2018, 544, 118-126.	2.3	32
49	Drop impact on chemically structured arrays. Journal of Physics Condensed Matter, 2005, 17, S595-S605.	0.7	31
50	Breakup and atomization of a stretching crown. Physical Review E, 2007, 76, 026302.	0.8	31
51	Fast transient spray cooling of a hot thick target. Journal of Fluid Mechanics, 2019, 881, 84-103.	1.4	30
52	Impact of a crushing ice particle onto a dry solid wall. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150525.	1.0	29
53	On the influence of surface tension during the impact of particles on a liquid-gaseous interface. Physics of Fluids, 2016, 28, .	1.6	29
54	Fluctuations of a spray generated by an airblast atomizer. Experiments in Fluids, 2009, 46, 1081-1091.	1.1	27

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55	Comparative assessment of Volume-of-Fluid and Level-Set methods by relevance to dendritic ice growth in supercooled water. Computers and Fluids, 2013, 79, 44-52.	1.3	27
56	Computational modelling of flow and conjugate heat transfer of a drop impacting onto a cold wall. International Journal of Heat and Mass Transfer, 2017, 109, 971-980.	2.5	27
57	Investigation of the Impact Behaviour of Ice Particles. , 2014, , .		25
58	Transport processes in a wet granular ice layer: Model for ice accretion and shedding. International Journal of Heat and Mass Transfer, 2016, 97, 461-472.	2.5	25
59	Model for ballistic fragmentation and behind-armor debris. International Journal of Impact Engineering, 2000, 24, 171-201.	2.4	24
60	Normal penetration of an eroding projectile into an elasticâ€“plastic target. International Journal of Impact Engineering, 2001, 25, 573-597.	2.4	23
61	Shape evolution of a melting nonspherical particle. Physical Review E, 2015, 92, 033012.	0.8	23
62	Towards modelling of initial and final stages of supercooled water solidification. International Journal of Thermal Sciences, 2015, 92, 150-161.	2.6	23
63	Spontaneous rise in open rectangular channels under gravity. Journal of Colloid and Interface Science, 2018, 527, 151-158.	5.0	23
64	Crystallization of supercooled water: A level-set-based modeling of the dendrite tip velocity. International Journal of Heat and Mass Transfer, 2013, 66, 830-837.	2.5	21
65	Study of the internal flow in a rotary atomizer and its influence on the properties of the resulting spray. International Journal of Multiphase Flow, 2018, 100, 30-40.	1.6	21
66	Gravity effect on spray impact and spray cooling. Microgravity Science and Technology, 2007, 19, 151-154.	0.7	20
67	Magic carpet breakup of a drop impacting onto a heated surface in a depressurized environment. International Journal of Heat and Mass Transfer, 2019, 145, 118729.	2.5	19
68	Thermal stability control of the water-in-diesel microemulsion fuel produced by using a nonionic surfactant combined with aliphatic alcohols. Journal of Dispersion Science and Technology, 2020, 41, 771-778.	1.3	19
69	Secondary atomization of water-in-oil emulsion drops impinging on a heated surface in the film boiling regime. International Journal of Heat and Mass Transfer, 2021, 165, 120672.	2.5	19
70	Wetting and icing of surfaces. Current Opinion in Colloid and Interface Science, 2021, 53, 101400.	3.4	18
71	The hydrodynamics of drop impact onto chemically structured surfaces. Journal of Physics Condensed Matter, 2005, 17, S607-S622.	0.7	14
72	3D computation of an incipient motion of a sessile drop on a rigid surface with contact angle hysteresis. Theoretical and Computational Fluid Dynamics, 2015, 29, 373-390.	0.9	14

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73	Supercooled Water Drops Do Not Freeze During Impact on Hybrid Janus Particle-Based Surfaces. Chemistry of Materials, 2019, 31, 112-123.	3.2	14
74	Behavior of charged and uncharged drops in high alternating tangential electric fields. Physical Review E, 2020, 101, 023102.	0.8	13
75	Aerodynamically driven motion of a wall-bounded drop on a smooth solid substrate. Physical Review Fluids, 2019, 4, .	1.0	13
76	Modelling of the breakup process of viscous fluids by a high-speed rotary atomizer. Experiments in Fluids, 2018, 59, 1.	1.1	12
77	Laser based measurement of water film thickness for the application in exhaust after-treatment processes. International Journal of Heat and Fluid Flow, 2018, 71, 288-294.	1.1	12
78	Pinch-off of a viscous liquid bridge stretched with high Reynolds numbers. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2020, 587, 124271.	2.3	12
79	Fingering instability of a viscous liquid bridge stretched by an accelerating substrate. Journal of Fluid Mechanics, 2020, 899, .	1.4	12
80	Capillary rivulet rise in real-world corners. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2020, 592, 124530.	2.3	12
81	Hydrodynamic model of a collision of a spherical plastic ice particle with a perfectly rigid substrate. International Journal of Impact Engineering, 2022, 159, 104019.	2.4	12
82	Spray Generated by an Airblast Atomizer Under Elevated Ambient Pressures. Journal of Propulsion and Power, 2010, 26, 1170-1183.	1.3	11
83	Numerical investigation of ice particle accretion on heated surfaces with application to aircraft engines. , 2014, , .		11
84	Experimental Investigation of AdBlue Film Formation in a Generic SCR Test Bench and Numerical Analysis Using LES. Applied Sciences (Switzerland), 2021, 11, 6907.	1.3	11
85	Spray Generated by an Airblast Atomizer at High-Pressure Conditions. , 2007, , 619.		10
86	Pinch-off of a stretching viscous filament and drop transport. New Journal of Physics, 2015, 17, 083059.	1.2	10
87	Splashing of a Newtonian drop impacted onto a solid substrate coated by a thin soft layer. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2018, 553, 89-96.	2.3	10
88	Thermosuperrepellency of a hot substrate caused by vapour percolation. Communications Physics, 2021, 4, .	2.0	10
89	Investigation of the Melting Behaviour of Ice Particles in an Acoustic Levitator. , 2014, , .		9
90	CHARACTERIZATION OF A SPRAY GENERATED BY AN AIRBLAST ATOMIZERWITH PREFILMER. Atomization and Sprays, 2010, 20, 887-903.	0.3	9

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91	Water Drop Impact on Cold Surfaces with Solidification. AIP Conference Proceedings, 2011, , .	0.3	8
92	Inception of ice accretion by ice crystal impact. Journal of Physics: Conference Series, 2016, 745, 032013.	0.3	8
93	Investigations on the Influence of Fuel Oil Film Interaction on Pre-ignition Events in Highly Boosted DI Gasoline Engines. , 2018, , .		8
94	Millisecond fluid pattern formation in the nip of a gravure printing machine. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2019, 575, 222-229.	2.3	8
95	Interfacial relaxation â€“ Crucial for phase-field methods to capture low to high energy drop-film impacts. International Journal of Heat and Fluid Flow, 2022, 94, 108943.	1.1	8
96	Numerical and Experimental Study of Spray Produced by an Airblast Atomizer Under Elevated Pressure Conditions. , 2008, , .		6
97	Note on â€œDynamics of inertia dominated binary drop collisionsâ€•[Phys. Fluids 16, 3438 (2004)]. Physics of Fluids, 2009, 21, .	1.6	6
98	Fast liquid sheet and filament dynamics in the fluid splitting process. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2018, 557, 20-27.	2.3	6
99	FLUX MEASUREMENTS IN SPRAYS USING PHASE DOPPLER TECHNIQUES. Atomization and Sprays, 2001, 11, 34.	0.3	6
100	Shuffling gait motion of an aerodynamically driven wall-bound drop. Physical Review Fluids, 2020, 5, .	1.0	6
101	Impact of electric charge and motion of water drops on the inception field strength of partial discharges. Physical Review E, 2020, 102, 063101.	0.8	5
102	Heat Transfer During Drop Impact Onto a Heated Solid Substrate. , 2010, , .		4
103	Evaluation of spray/wall interaction data. Measurement Science and Technology, 2011, 22, 065402.	1.4	4
104	Measurements and modelling of the residual mass upon impact of supercooled liquid drops. Experiments in Fluids, 2021, 62, 1.	1.1	4
105	Experimental Investigation of Normal and Oblique Impact of Ice Particles Onto a Wetted Wall. , 2022, , .		4
106	CHAOTIC DISINTEGRATION OF A LIQUID WALL FILM: A MODEL OF AN AIR-BLAST ATOMIZATION. Atomization and Sprays, 2010, 20, 837-845.	0.3	3
107	Optical investigation on the interaction between a fuel-spray and an oil wetted wall with the focus on secondary droplets. International Journal of Engine Research, 2023, 24, 1578-1588.	1.4	3
108	Mode of Action of Silicone Drift Control Agents. , 2016, , 113-132.		2

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109	Measurement of the Heat Flux During a Drop Impact onto a Hot Dry Solid Surface Using Infrared Thermal Imaging. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2020, , 553-562.	0.2	2
110	Dynamics of a steady liquid flow in a rim bounding a falling wall film: Influence of aerodynamic effects. Physical Review Fluids, 2020, 5, .	1.0	2
111	A unified finite volume framework for phaseâ€field simulations of an arbitrary number of fluid phases. Canadian Journal of Chemical Engineering, 2022, 100, 2291-2308.	0.9	2
112	Surface Energy Influence on Supercooled Water Crystallization: A Computational Study. , 2015, , .		1
113	Impact of Supercooled Liquid Drops onto Cold Solid Substrates. , 0, , .		1
114	Drops make a splash. , 2017, , .		1
115	Drop Impact onto a Dry Solid Wall. , 0, , 100-154.		1
116	Drop Impact onto Dry Surfaces with Complex Morphology. , 0, , 155-252.		1
117	Experimental and numerical investigations of snow accretion.. , 2021, , .		1
118	Experimental Characterization of Spray generated by a Rotary Atomizer Wheel. , 0, , .		1
119	Splashing of a very viscous liquid drop impacting onto a solid wall wetted by another liquid. , 0, , .		1
120	Experimental and Computational Investigation of binary drop collisions under elevated pressure. , 0, , .		1
121	Interaction between an aerodynamically driven, wall-bound drop and a single groove. European Physical Journal: Special Topics, 2020, 229, 1757-1769.	1.2	1
122	Heat Transfer During Drop Impact Onto Wetted Heated Smooth and Structured Substrates: Experimental and Theoretical Study. , 2010, , .		0
123	Selected Basic Flows and Forces. , 0, , 44-84.		0
124	Drop Impacts with Liquid Pools and Layers. , 0, , 255-320.		0
125	Atomization and Spray Formation. , 0, , 354-411.		0
126	Spray Impact. , 0, , 412-470.		0

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127	Characterizing Microscopic Ice Particle Impacts onto a Rigid Surface: Wind Tunnel Setup and Analysis. , 2021, , .		0
128	Numerical model of supercooled water freezing. , 2012, , .		0
129	Diode Laser Based Film Thickness Measurement of DEF. , 2018, , .		0
130	Shape Evolution of a Melting Snowflake. , 2022, , .		0
131	Insights on Ice Particle Impacts Initializing the Ice Accretion Process during Ice Crystal Icing. , 2022, , .		0