S I Abarzhi

List of Publications by Year
in descending order

59 papers	1,140 citations	361413 20 h-index	414414 32 g-index
63 all docs	63 docs citations	63 times ranked	372 citing authors

#	Article	IF	Citations
1	Review of theoretical modelling approaches of Rayleighâ€“Taylor instabilities and turbulent mixing. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 1809-1828.	3.4	140
2	Supernova, nuclear synthesis, fluid instabilities, and interfacial mixing. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 18184-18192.	7.1	56
3	Rayleighâ€“Taylor turbulent mixing of immiscible, miscible and stratified fluids. Physics of Fluids, 2005, 17, 081705.	4.0	54
4	Stable Steady Flows in Rayleigh-Taylor Instability. Physical Review Letters, 1998, 81, 337-340.	7.8	51
5	What is certain and what is not so certain in our knowledge of Rayleighâ€“Taylor mixing?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2013, 371, 20130266.	3.4	50
6	Review of nonlinear dynamics of the unstable fluid interface: conservation laws and group theory. Physica Scripta, 2008, T132, 014012.	2.5	49
7	On fundamentals of Rayleigh-Taylor turbulent mixing. Europhysics Letters, 2010, 91, 35001.	2.0	46
8	Nonlinear evolution of the Richtmyerâ€“Meshkov instability. Journal of Fluid Mechanics, 2008, 612, 311-338.	3.4	43
9	Rayleigh-Taylor mixing in supernova experiments. Physics of Plasmas, 2015, 22, .	1.9	43
10	Effect of initial perturbation amplitude on Richtmyer-Meshkov flows induced by strong shocks. Physics of Plasmas, 2015, 22, .	1.9	37
11	Scale coupling in Richtmyer-Meshkov flows induced by strong shocks. Physics of Plasmas, 2012, 19, .	1.9	35
12	Perturbation theory and numerical modelling of weakly and moderately nonlinear dynamics of the incompressible Richtmyerâ€“Meshkov instability. Journal of Fluid Mechanics, 2014, 751, 432-479.	3.4	32
13	Turbulent mixing and beyond: non-equilibrium processes from atomistic to astrophysical scales II. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2013, 371, 20130268.	3.4	27
14	Multiscale character of the nonlinear coherent dynamics in the Rayleigh-Taylor instability. Physical Review E, 2006, 73, 036310.	2.1	26
15	Coherent structures and pattern formation in Rayleighâ€“Taylor turbulent mixing. Physica Scripta, 2008, 78, 015401.	2.5	26
16	High-performance holographic technologies for fluid-dynamics experiments. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 1705-1737.	3.4	26
17	A comparative study of approaches for modeling Rayleighâ€“Taylor turbulent mixing. Physica Scripta, 2010, T142, 014012.	2.5	25
18	Group theory and jellyâ€™s experiment of Rayleighâ€“Taylor instability and Rayleighâ€“Taylor interfacial mixing. Fluid Dynamics Research, 2019, 51, 065502.	1.3	25

#	Article	IF	Citations
19	Dynamics of two-dimensional Rayleighâ€“Taylor bubbles for fluids with a finite density contrast. Physics of Fluids, 2003, 15, 2190-2197.	4.0	24
20	Turbulent mixing and beyond. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 1539-1546.	3.4	22
21	Maximum initial growth-rate of strong-shock-driven Richtmyer-Meshkov instability. Physics of Plasmas, 2017, 24, .	1.9	21
22	Effect of a relative phase of waves constituting the initial perturbation and the wave interference on the dynamics of strong-shock-driven Richtmyer-Meshkov flows. Physical Review Fluids, 2017, 2, .	2.5	21
23	Non-uniform volumetric structures in Richtmyer-Meshkov flows. Physics of Fluids, 2013, 25, .	4.0	19
24	Interface dynamics: Mechanisms of stabilization and destabilization and structure of flow fields. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 18218-18226.	7.1	19
25	Interfaces and mixing: Nonequilibrium transport across the scales. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 18171-18174.	7.1	18
26	Three-dimensional bubbles in Rayleighâ€“Taylor instability. Physics of Fluids, 1999, 11, 3306-3311.	4.0	13
27	Length scale for bubble problem in Rayleighâ€“Taylor instability. Physics of Fluids, 1999, 11, 940-942.	4.0	12
28	Analysis of dynamics, stability, and flow fields' structure of an accelerated hydrodynamic discontinuity with interfacial mass flux by a general matrix method. Physics of Plasmas, 2018, 25, .	1.9	12
29	Scale-dependent Rayleighâ€“Taylor dynamics with variable acceleration by group theory approach. Physics of Plasmas, 2020, 27, 072107.	1.9	12
30	Effect of adiabatic index on Richtmyerâ€“Meshkov flows induced by strong shocks. Physics of Fluids, 2021, 33, .	4.0	12
31	Group theory analysis of early-time scale-dependent dynamics of the Rayleigh-Taylor instability with time varying acceleration. Physical Review Fluids, 2019, 4, .	2.5	12
32	Turbulent mixing and beyond: non-equilibrium processes from atomistic to astrophysical scales. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2013, 371, 20120435.	3.4	11
33	Stability of a hydrodynamic discontinuity. Physica Scripta, 2015, 90, 018002.	2.5	11
34	Self-similar interfacial mixing with variable acceleration. Physics of Fluids, 2021, 33, .	4.0	11
35	Inertial dynamics of an interface with interfacial mass flux: Stability and flow fieldsâ€™ structure, inertial stabilization mechanism, degeneracy of Landauâ€™s solution, effect of energy fluctuations, and chemistry-induced instabilities. Physics of Fluids, 2020, 32, 082105.	4.0	10
36	Turbulent mixing and beyond: non-equilibrium processes from atomistic to astrophysical scales I. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2013, 371, 20120436.	3.4	9

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37	Regular and singular late-time asymptotes of potential motion of fluid with a free boundary. Physics of Fluids, 2000, 12, 3112-3120.	4.0	7
38	Low-symmetric bubbles in Rayleighâ€“Taylor instability. Physics of Fluids, 2001, 13, 2182-2189.	4.0	7
39	Asymptotic behavior of three-dimensional bubbles in the Richtmyerâ€“Meshkov instability. Physics of Fluids, 2001, 13, 2866-2875.	4.0	6
40	Nonlinear evolution of unstable fluid interface. Physical Review E, 2002, 66, 036301.	2.1	6
41	Richtmyer-Meshkov unstable dynamics influenced by pressure fluctuations. Physics of Plasmas, 2016, 23, .	1.9	6
42	On the dynamics of Richtmyerâ€“Meshkov bubbles in unstable three-dimensional interfacial coherent structures with time-dependent acceleration. Physics of Fluids, 2020, 32, 062107.	4.0	6
43	Deterministic and stochastic dynamics of Rayleighâ€“Taylor mixing with a power-law time-dependent acceleration. Physica Scripta, 2017, 92, 014002.	2.5	5
44	Whittle maximum likelihood estimate of spectral properties of Rayleigh-Taylor interfacial mixing using hot-wire anemometry experimental data. Physical Review E, 2020, 102, 053107.	2.1	5
45	On the Rayleigh-Taylor unstable dynamics of three-dimensional interfacial coherent structures with time-dependent acceleration. AIP Advances, 2019, 9, 075012.	1.3	4
46	Experiments on plasma arcs at a waterâ€“air interface. Physics of Plasmas, 2021, 28, .	1.9	4
47	Scale-dependent Rayleighâ€“Taylor dynamics with variable acceleration in a finite-sized domain for three-dimensional flows. Physics of Fluids, 2021, 33, .	4.0	4
48	On Rayleigh-Taylor and Richtmyer-Meshkov Dynamics With Inverse-Quadratic Power-Law Acceleration. Frontiers in Applied Mathematics and Statistics, 2022, 7, .	1.3	4
49	Early- and late-time evolution of Rayleighâ€“Taylor instability in a finite-sized domain by means of group theory analysis. Fluid Dynamics Research, 2020, 52, 025504.	1.3	3
50	Supernovae and the Arrow of Time. Entropy, 2022, 24, 829.	2.2	3
51	Macroscopic and microscopic stabilization mechanisms of unstable interface with interfacial mass flux. Physics of Plasmas, 2021, 28, .	1.9	2
52	Effect of dimensionality and symmetry on scale-dependent dynamics of Rayleighâ€“Taylor instability. Fluid Dynamics Research, 2021, 53, 035507.	1.3	2
53	Richtmyerâ€“Meshkov dynamics with variable acceleration by group theory approach. Applied Mathematics Letters, 2020, 105, 106338.	2.7	1
54	Scale-Dependent and Self-Similar Rayleigh–Taylor and Richtmyer–Meshkov Dynamics Induced by Acceleration Varying with Length Scale. SIAM Journal on Applied Mathematics, 2021, 81, 1002-1019.	1.8	1

#	Article	IF	Citations
55	On interplay of surface tension and inertial stabilization mechanisms in the stable and unstable interface dynamics with the interfacial mass flux. Physica Scripta, 2021, 96, 084001.	2.5	1
56	Interface dynamics under thermal heat flux, inertial stabilization and destabilizing acceleration. Physics Letters, Section A: General, Atomic and Solid State Physics, 2021, 426, 127827.	2.1	1
57	Interface dynamics and flow fieldsâ€™ structure under thermal heat flux, thermal conductivity, destabilizing acceleration and inertial stabilization. SN Applied Sciences, 2022, 4, .	2.9	1
58	Regular and Singular Behaviours and New Morphologies in the Rayleigh Taylor Instability. MATRIX Book Series, 2021, , 359-373.	0.2	0
59	Preface: Non-equilibrium transport, interfaces, and mixing in plasmas. Physics of Plasmas, 2022, 29, 032103.	1.9	0