

Tapan K Sengupta

List of Publications by Year in descending order

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157
papers

2,568
citations

186209

28
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265120

42
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163
all docs

163
docs citations

163
times ranked

864
citing authors

#	ARTICLE	IF	CITATIONS
1	Analysis of central and upwind compact schemes. Journal of Computational Physics, 2003, 192, 677-694.	1.9	159
2	Error dynamics: Beyond von Neumann analysis. Journal of Computational Physics, 2007, 226, 1211-1218.	1.9	92
3	Suppression of vortex shedding behind a circular cylinder by another control cylinder at low Reynolds numbers. Journal of Fluid Mechanics, 2007, 573, 171-190.	1.4	79
4	High Accuracy Schemes for DNS and Acoustics. Journal of Scientific Computing, 2006, 26, 151-193.	1.1	73
5	Vortex-induced instability of an incompressible wall-bounded shear layer. Journal of Fluid Mechanics, 2003, 493, 277-286.	1.4	70
6	A new combined stable and dispersion relation preserving compact scheme for non-periodic problems. Journal of Computational Physics, 2009, 228, 3048-3071.	1.9	64
7	Flow past a circular cylinder in the vicinity of a plane wall. Journal of Fluids and Structures, 2005, 20, 403-423.	1.5	63
8	Further improvement and analysis of CCD scheme: Dissipation discretization and de-aliasing properties. Journal of Computational Physics, 2009, 228, 6150-6168.	1.9	59
9	Dynamical system approach to instability of flow past a circular cylinder. Journal of Fluid Mechanics, 2010, 656, 82-115.	1.4	52
10	Instabilities of Flows and Transition to Turbulence. , 0, , .		52
11	A new compact scheme for parallel computing using domain decomposition. Journal of Computational Physics, 2007, 220, 654-677.	1.9	50
12	Space-time discretizing optimal DRP schemes for flow and wave propagation problems. Computers and Fluids, 2011, 47, 144-154.	1.3	49
13	A Taylor Vortex Photocatalytic Reactor for Water Purification. Industrial & Engineering Chemistry Research, 2001, 40, 5268-5281.	1.8	45
14	Optimal time advancing dispersion relation preserving schemes. Journal of Computational Physics, 2010, 229, 3623-3651.	1.9	43
15	High Accuracy Compact Schemes and Gibbs' Phenomenon. Journal of Scientific Computing, 2004, 21, 253-268.	1.1	42
16	Spurious waves in discrete computation of wave phenomena and flow problems. Applied Mathematics and Computation, 2012, 218, 9035-9065.	1.4	40
17	UNSTEADY FLOW PAST ELLIPTIC CYLINDERS. Journal of Fluids and Structures, 1997, 11, 555-595.	1.5	39
18	Spatiotemporal Growing Wave Fronts in Spatially Stable Boundary Layers. Physical Review Letters, 2006, 96, 224504.	2.9	39

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19	A Comparative Study of Time Advancement Methods for Solving Navier–Stokes Equations. Journal of Scientific Computing, 2004, 21, 225-250.	1.1	37
20	Spectral analysis of finite difference schemes for convection diffusion equation. Computers and Fluids, 2017, 150, 95-114.	1.3	35
21	Symmetrized compact scheme for receptivity study of 2D transitional channel flow. Journal of Computational Physics, 2006, 215, 245-273.	1.9	34
22	A dispersion relation preserving optimized upwind compact difference scheme for high accuracy flow simulations. Journal of Computational Physics, 2014, 278, 378-399.	1.9	34
23	Onset of Turbulence from the Receptivity Stage of Fluid Flows. Physical Review Letters, 2011, 107, 154501.	2.9	32
24	Temporal flow instability for Magnus–Robins effect at high rotation rates. Journal of Fluids and Structures, 2003, 17, 941-953.	1.5	31
25	Vorticity dynamics of the three-dimensional Taylor-Green vortex problem. Physics of Fluids, 2019, 31, .	1.6	31
26	Solving Navier–Stokes equation for flow past cylinders using single-block structured and overset grids. Journal of Computational Physics, 2010, 229, 178-199.	1.9	30
27	Direct numerical simulation of 2D transonic flows around airfoils. Computers and Fluids, 2013, 88, 19-37.	1.3	30
28	A new velocity–vorticity formulation for direct numerical simulation of 3D transitional and turbulent flows. Journal of Computational Physics, 2015, 284, 230-260.	1.9	30
29	Universal instability modes in internal and external flows. Computers and Fluids, 2011, 40, 221-235.	1.3	29
30	Roles of bulk viscosity on Rayleigh-Taylor instability: Non-equilibrium thermodynamics due to spatio-temporal pressure fronts. Physics of Fluids, 2016, 28, .	1.6	29
31	FLOW PAST ROTATING CYLINDERS AT HIGH REYNOLDS NUMBERS USING HIGHER ORDER UPWIND SCHEME. Computers and Fluids, 1998, 27, 47-70.	1.3	27
32	An enstrophy-based linear and nonlinear receptivity theory. Physics of Fluids, 2018, 30, 054106.	1.6	27
33	Diffusion in inhomogeneous flows: Unique equilibrium state in an internal flow. Computers and Fluids, 2013, 88, 440-451.	1.3	26
34	Analysis of anisotropy of numerical wave solutions by high accuracy finite difference methods. Journal of Computational Physics, 2011, 230, 27-60.	1.9	25
35	Investigation of compressibility effects on dynamic stall of pitching airfoil. Physics of Fluids, 2017, 29, .	1.6	24
36	Upwind schemes and large eddy simulation. International Journal for Numerical Methods in Fluids, 1999, 31, 879-889.	0.9	23

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37	Flow past a circular cylinder executing rotary oscillation: Dimensionality of the problem. Physics of Fluids, 2018, 30, .	1.6	22
38	Design and analysis of a new filter for LES and DES. Computers and Structures, 2009, 87, 735-750.	2.4	20
39	Non-linear instability analysis of the two-dimensional Navier-Stokes equation: The Taylor-Green vortex problem. Physics of Fluids, 2018, 30, .	1.6	20
40	New explicit two-dimensional higher order filters. Computers and Fluids, 2010, 39, 1848-1863.	1.3	19
41	Solution of linearized rotating shallow water equations by compact schemes with different grid-staggering strategies. Journal of Computational Physics, 2012, 231, 2300-2327.	1.9	19
42	Impulse response and spatio-temporal wave-packets: The common feature of rogue waves, tsunami, and transition to turbulence. Physics of Fluids, 2017, 29, 124103.	1.6	19
43	Roles of bulk viscosity on transonic shock-wave/boundary layer interaction. Physics of Fluids, 2019, 31, .	1.6	19
44	BY-PASS MECHANISM OF TRANSITION TO TURBULENCE. Journal of Fluids and Structures, 2002, 16, 15-29.	1.5	18
45	Control of flow using genetic algorithm for a circular cylinder executing rotary oscillation. Computers and Fluids, 2007, 36, 578-600.	1.3	18
46	Hybrid sixth order spatial discretization scheme for non-uniform Cartesian grids. Computers and Fluids, 2017, 157, 208-231.	1.3	18
47	Accelerated flow past a symmetric aerofoil: experiments and computations. Journal of Fluid Mechanics, 2007, 591, 255-288.	1.4	17
48	Adaptive multi-dimensional filters. Computers and Fluids, 2011, 49, 128-140.	1.3	17
49	A new alternating bi-diagonal compact scheme for non-uniform grids. Journal of Computational Physics, 2016, 310, 1-25.	1.9	17
50	Multiple Hopf bifurcations and flow dynamics inside a 2D singular lid driven cavity. Computers and Fluids, 2018, 166, 86-103.	1.3	17
51	Tracking disturbances in transitional and turbulent flows: Coherent structures. Physics of Fluids, 2019, 31, 124106.	1.6	17
52	Effects of free stream excitation on the boundary layer over a semi-infinite flat plate. Physics of Fluids, 2020, 32, .	1.6	17
53	Nonmodal nonlinear route of transition to two-dimensional turbulence. Physical Review Research, 2020, 2, .	1.3	17
54	Multiscale instabilities of Magnusâ€™Robins effect for compressible flow past rotating cylinder. Physics of Fluids, 2021, 33, .	1.6	16

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55	A High Accuracy Preserving Parallel Algorithm for Compact Schemes for DNS. ACM Transactions on Parallel Computing, 2020, 7, 1-32.	1.2	16
56	An improved method for calculating flow past flapping and hovering airfoils. Theoretical and Computational Fluid Dynamics, 2005, 19, 417-440.	0.9	14
57	Mixed convection flow past a vertical plate: Stability analysis and its direct simulation. International Journal of Thermal Sciences, 2009, 48, 461-474.	2.6	14
58	Error dynamics of diffusion equation: Effects of numerical diffusion and dispersive diffusion. Journal of Computational Physics, 2014, 266, 240-251.	1.9	14
59	Direct numerical simulation of vortex-induced instability for a zero-pressure-gradient boundary layer. Physical Review E, 2019, 100, 033118.	0.8	14
60	Role of non-zero bulk viscosity in three-dimensional Rayleigh-Taylor instability: Beyond Stokes's hypothesis. Computers and Fluids, 2021, 225, 104995.	1.3	14
61	Three-dimensional direct numerical simulation of Rayleigh-Taylor instability triggered by acoustic excitation. Physics of Fluids, 2022, 34, .	1.6	14
62	A new flux-vector splitting compact finite volume scheme. Journal of Computational Physics, 2005, 207, 261-281.	1.9	13
63	Enstrophy-based proper orthogonal decomposition for reduced-order modeling of flow past a cylinder. Physical Review E, 2015, 91, 043303.	0.8	13
64	Is Tollmien-Schlichting wave necessary for transition of zero pressure gradient boundary layer flow?. Physics of Fluids, 2019, 31, .	1.6	13
65	Grid sensitivity and role of error in computing a lid-driven cavity problem. Physical Review E, 2019, 99, 013305.	0.8	13
66	Global spectral analysis for convection-diffusion-reaction equation in one and two-dimensions: Effects of numerical anti-diffusion and dispersion. Journal of Computational Physics, 2020, 408, 109310.	1.9	13
67	A novel compressible enstrophy transport equation-based analysis of instability during Magnus-Robins effects for high rotation rates. Physics of Fluids, 2022, 34, .	1.6	13
68	Thermal control of transonic shock-boundary layer interaction over a natural laminar flow airfoil. Physics of Fluids, 2021, 33, .	1.6	13
69	Orthogonal grid generation for Navier-Stokes computations. International Journal for Numerical Methods in Fluids, 1998, 28, 215-224.	0.9	12
70	Proper orthogonal decomposition of direct numerical simulation data of by-pass transition. Computers and Structures, 2004, 82, 2693-2703.	2.4	12
71	Dynamics and instability of a shielded vortex in close proximity of a wall. Computers and Fluids, 2012, 70, 166-175.	1.3	12
72	An improved orthogonal grid generation method for solving flows past highly cambered aerofoils with and without roughness elements. Computers and Fluids, 2014, 103, 275-289.	1.3	11

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73	Navier-Stokes Solution by New Compact Scheme for Incompressible Flows. Journal of Scientific Computing, 2004, 21, 269-282.	1.1	10
74	Drag reduction by rotary oscillation for flow past a circular cylinder. International Journal of Emerging Multidisciplinary Fluid Sciences, 2009, 1, 269-298.	0.5	10
75	Spectral analysis of flux vector splitting finite volume methods. International Journal for Numerical Methods in Fluids, 2001, 37, 149-174.	0.9	9
76	Subcritical instability on the attachment-line of an infinite swept wing. Journal of Fluid Mechanics, 2005, 529, 147-171.	1.4	9
77	A new compact difference scheme for second derivative in non-uniform grid expressed in self-adjoint form. Journal of Computational Physics, 2011, 230, 1822-1848.	1.9	9
78	Global spectral analysis of multi-level time integration schemes: Numerical properties for error analysis. Applied Mathematics and Computation, 2017, 304, 41-57.	1.4	9
79	Global spectral analysis of three-time level integration schemes: Focusing phenomenon. Computers and Fluids, 2017, 157, 182-195.	1.3	9
80	Receptivity to Harmonic Excitation Following Nonimpulsive Start for Boundary-Layer Flows. AIAA Journal, 2017, 55, 3233-3238.	1.5	9
81	EFFECT OF FREE-STREAM TURBULENCE ON FLOW OVER AEROFOIL SECTION AT HIGH INCIDENCE. Journal of Fluids and Structures, 2001, 15, 671-690.	1.5	8
82	Nonlinear instability of mixed convection flow over a horizontal cylinder. Acta Mechanica, 2008, 201, 197-210.	1.1	8
83	Non-equilibrium Thermodynamics of Rayleigh-Taylor Instability. International Journal of Thermophysics, 2016, 37, 1.	1.0	8
84	Nonlinear and Nonparallel Receptivity of Zero-pressure Gradient Boundary Layer. International Journal of Emerging Multidisciplinary Fluid Sciences, 2009, 1, 19-35.	0.5	8
85	Comparative study of transonic shock-boundary layer interactions due to surface heating and cooling on an airfoil. Physics of Fluids, 2022, 34, .	1.6	8
86	BOUNDARY LAYERS EXCITED BY LOW FREQUENCY DISTURBANCES-KLEBANOFF MODE. Journal of Fluids and Structures, 1997, 11, 845-853.	1.5	7
87	Role of Time Integration in Computing Transitional Flows Caused by Wall Excitation. Journal of Scientific Computing, 2015, 65, 224-248.	1.1	7
88	Three-dimensional transition of zero-pressure-gradient boundary layer by impulsively and nonimpulsively started harmonic wall excitation. Physical Review E, 2018, 98, .	0.8	7
89	Effect of frequency and wavenumber on the three-dimensional routes of transition by wall excitation. Physics of Fluids, 2019, 31, 064107.	1.6	7
90	Non-linear instability analysis of the three-dimensional Navier-Stokes equations: Taylor-Green vortex problem. Physics of Fluids, 2020, 32, .	1.6	7

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91	Solution of the Orr-Sommerfeld equation for high wave numbers. Computers and Fluids, 1992, 21, 301-303.	1.3	6
92	Spatial Stability for Mixed Convection Boundary Layer over a Heated Horizontal Plate. Studies in Applied Mathematics, 2006, 117, 265-298.	1.1	6
93	A linear focusing mechanism for dispersive and non-dispersive wave problems. Journal of Computational Physics, 2011, 230, 1652-1675.	1.9	6
94	Direct numerical simulation of transitional mixed convection flows: Viscous and inviscid instability mechanisms. Physics of Fluids, 2013, 25, .	1.6	6
95	Enstrophy-based proper orthogonal decomposition of flow past rotating cylinder at super-critical rotating rate. Physics of Fluids, 2016, 28, .	1.6	6
96	Analysis of Pseudo-spectral Methods Used for Numerical Simulations of Turbulence. WSEAS Transactions on Computer Research, 2022, 10, 9-24.	0.3	6
97	The three-dimensional impulse response of a boundary layer to different types of wall excitation. Physics of Fluids, 2018, 30, .	1.6	5
98	Thermodynamic Merger of Fluctuation Theorem and Principle of Least Action: Case of Rayleigh-Taylor Instability. Journal of Non-Equilibrium Thermodynamics, 2019, 44, 363-371.	2.4	5
99	Nonlinear Receptivity and Instability Studies by Proper Orthogonal Decomposition. , 2011, , .		4
100	Non-equilibrium Thermodynamics of Rayleigh-Taylor instability. Journal of Physics: Conference Series, 2016, 759, 012079.	0.3	4
101	A Critical Assessment of Simulations for Transitional and Turbulent Flows. , 2016, , 491-532.		4
102	Effects of numerical anti-diffusion in closed unsteady flows governed by two-dimensional Navier-Stokes equation. Computers and Fluids, 2020, 201, 104479.	1.3	4
103	Computational Aerodynamics and Aeroacoustics. , 2020, , .		4
104	DNS of Low Reynolds Number Aerodynamics in the Presence of Free Stream Turbulence. Frontiers in Aerospace Engineering, 2015, 4, 20-34.	0.8	4
105	Analysis and Design of a New Dispersion Relation Preserving Alternate Direction Bidiagonal Compact Scheme. Journal of Scientific Computing, 2015, 64, 55-82.	1.1	3
106	High accuracy solution of bi-directional wave propagation in continuum mechanics. Journal of Computational Physics, 2015, 298, 209-236.	1.9	3
107	KdV Equation and Computations of Solitons: Nonlinear Error Dynamics. Journal of Scientific Computing, 2015, 62, 693-717.	1.1	3
108	Reduced order model of flows by time-scaling interpolation of DNS data. Advanced Modeling and Simulation in Engineering Sciences, 2018, 5, .	0.7	3

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109	Error growth and phase lag analysis for high Courant numbers. Applied Mathematics and Computation, 2019, 346, 374-384.	1.4	3
110	Control of Bypass Transitional Flow Past an Aerofoil by Plasma Actuation. International Journal of Emerging Multidisciplinary Fluid Sciences, 2011, 3, 117-134.	0.5	3
111	Different Routes of Transition by Spatio-Temporal Wave-Front. , 2016, , 68-83.		2
112	Frequency-Dependent Capacitance-Based Plasma Model for Direct Simulation of Navier–Stokes Equation. AIAA Journal, 2017, 55, 180-194.	1.5	2
113	Relevance of two- and three-dimensional disturbance field explained with linear stability analysis of Orr-Sommerfeld equation by compound matrix method. Computers and Fluids, 2021, 225, 104965.	1.3	2
114	Effects of Error on the Onset and Evolution of Rayleigh–Taylor Instability. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2018, , 233-239.	0.2	2
115	Dynamical System Theory of Flow Instability Using the Impulse and the Frequency Response Approaches. Springer Proceedings in Mathematics and Statistics, 2020, , 151-169.	0.1	2
116	Navier-Stokes solution by new compact schemes for incompressible flow. , 2003, , 1119-1124.		1
117	Computation of leading-edge contamination. Computers and Fluids, 2004, 33, 927-951.	1.3	1
118	On the divergence-free condition of velocity and vorticity in velocity-vorticity formulation of incompressible Navier-Stokes equation.. , 2011, , .		1
119	An explicit higher order difference scheme on a compact stencil for elliptic equations on curvilinear geometries. Applied Mathematics and Computation, 2014, 242, 143-158.	1.4	1
120	Space-Time Resolution for Transitional and Turbulent Flows. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 31-54.	0.3	1
121	DNS of Turbulence from Receptivity Stage: Role of Spatio-Temporal Wave Front. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2018, , 41-53.	0.2	1
122	High accuracy compact schemes and Gibbs' phenomenon. , 2003, , 898-903.		0
123	Governing Equations in Fluid Mechanics. , 0, , 8-30.		0
124	Solution of Navier–Stokes Equation. , 0, , 405-441.		0
125	Classification of Quasi-Linear Partial Differential Equations. , 0, , 31-37.		0
126	Waves and Space–Time Dependence in Computing. , 0, , 38-70.		0

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127	Spatial and Temporal Discretizations of Partial Differential Equations. , 0, , 71-91.		0
128	Solution Methods for Parabolic Partial Differential Equations. , 0, , 92-105.		0
129	Solution Methods for Elliptic Partial Differential Equations. , 0, , 106-129.		0
130	Solution of Hyperbolic PDEs: Signal and Error Propagation. , 0, , 130-149.		0
131	Curvilinear Coordinate and Grid Generation. , 0, , 150-195.		0
132	Higher Accuracy Methods. , 0, , 256-340.		0
133	Introduction to Finite Volume and Finite Element Methods. , 0, , 341-404.		0
134	Recent Developments in Discrete Finite Difference Computing. , 0, , 442-534.		0
135	New Frequency Dependent Capacitance Based SDBD Plasma Model for Direct Simulation of 2D Navier-Stokes Equation. , 2016, , .		0
136	Response to "Comment on "Roles of bulk viscosity on Rayleigh-Taylor instability: Non-equilibrium thermodynamics due to spatio-temporal pressure fronts" [Phys. Fluids 29, 019101 (2017)]. Physics of Fluids, 2017, 29, 019102.	1.6	0
137	DNS of Wall-Bounded Turbulent Flow: An Introduction. , 2019, , 1-15.		0
138	3D Routes of Transition to Turbulence by STWF. , 2019, , 307-345.		0
139	Focusing Phenomenon in Numerical Solution of Two-Dimensional Navier-Stokes Equation. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 1-29.	0.3	0
140	Non-adiabatic Wall Effects on Transonic Shock/Boundary Layer Interaction. Lecture Notes in Mechanical Engineering, 2021, , 267-287.	0.3	0
141	10.1063/5.0047662.1. , 2021, , .		0
142	Proper orthogonal decomposition of by-pass transition data. , 2003, , 889-892.		0
143	Effects of Free Stream Turbulence on a Three-Dimensional Transitional Flow. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2018, , 81-87.	0.2	0
144	Dynamics of the Spatio-Temporal Wave-Front in 2D Framework. , 2019, , 275-305.		0

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145	Receptivity and Instability. , 2019, , 121-222.		0
146	DNS of Navier–Stokes Equation. , 2019, , 17-120.		0
147	Nonlinear Theoretical and Computational Analysis of Fluid Flows. , 2019, , 223-274.		0
148	10.1063/1.5063700.1. , 2018, , .		0
149	Computational Incompressible Aerodynamics. , 2020, , 177-238.		0
150	Elementary Aerodynamics. , 2020, , 41-118.		0
151	Acoustic Wave Equation. , 2020, , 357-377.		0
152	Governing Equations for Aerodynamics and Acoustics. , 2020, , 119-176.		0
153	Solutions of Computational Acoustic Problems Using DRP Schemes. , 2020, , 379-439.		0
154	Elements of Continuum Mechanics for Fluid Flow and General Stress–Strain System. , 2020, , 1-40.		0
155	Methodologies and Solutions of Computational Aeroacoustic Problems. , 2020, , 441-519.		0
156	Computational Compressible Aerodynamics. , 2020, , 239-355.		0
157	10.1063/5.0091109.1. , 2022, , .		0