Tapan K Sengupta

List of Publications by Year
in descending order

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157	2,568	186265	265206
papers	citations	28 h-index	42 g-index

163	163	163	864
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Analysis of central and upwind compact schemes. Journal of Computational Physics, 2003, 192, 677-694.	3.8	159
2	Error dynamics: Beyond von Neumann analysis. Journal of Computational Physics, 2007, 226, 1211-1218.	3.8	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.	3.4	79
4	High Accuracy Schemes for DNS and Acoustics. Journal of Scientific Computing, 2006, 26, 151-193.	2.3	73
5	Vortex-induced instability of an incompressible wall-bounded shear layer. Journal of Fluid Mechanics, 2003, 493, 277-286.	3.4	70
6	A new combined stable and dispersion relation preserving compact scheme for non-periodic problems. Journal of Computational Physics, 2009, 228, 3048-3071.	3.8	64
7	Flow past a circular cylinder in the vicinity of a plane wall. Journal of Fluids and Structures, 2005, 20, 403-423.	3.4	63
8	Further improvement and analysis of CCD scheme: Dissipation discretization and de-aliasing properties. Journal of Computational Physics, 2009, 228, 6150-6168.	3.8	59
9	Dynamical system approach to instability of flow past a circular cylinder. Journal of Fluid Mechanics, 2010, 656, 82-115.	3.4	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.	3.8	50
12	Space-time discretizing optimal DRP schemes for flow and wave propagation problems. Computers and Fluids, 2011, 47, 144-154.	2.5	49
13	A Taylor Vortex Photocatalytic Reactor for Water Purification. Industrial & Engineering Chemistry Research, 2001, 40, 5268-5281.	3.7	45
14	Optimal time advancing dispersion relation preserving schemes. Journal of Computational Physics, 2010, 229, 3623-3651.	3.8	43
15	High Accuracy Compact Schemes and Gibbs' Phenomenon. Journal of Scientific Computing, 2004, 21, 253-268.	2.3	42
16	Spurious waves in discrete computation of wave phenomena and flow problems. Applied Mathematics and Computation, 2012, 218, 9035-9065.	2.2	40
17	UNSTEADY FLOW PAST ELLIPTIC CYLINDERS. Journal of Fluids and Structures, 1997, 11, 555-595.	3.4	39
18	Spatiotemporal Growing Wave Fronts in Spatially Stable Boundary Layers. Physical Review Letters, 2006, 96, 224504.	7.8	39

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19	A Comparative Study of Time Advancement Methods for Solving Navierâ€“Stokes Equations. Journal of Scientific Computing, 2004, 21, 225-250.	2.3	37
20	Spectral analysis of finite difference schemes for convection diffusion equation. Computers and Fluids, 2017, 150, 95-114.	2.5	35
21	Symmetrized compact scheme for receptivity study of 2D transitional channel flow. Journal of Computational Physics, 2006, 215, 245-273.	3.8	34
22	A dispersion relation preserving optimized upwind compact difference scheme for high accuracy flow simulations. Journal of Computational Physics, 2014, 278, 378-399.	3.8	34
23	Onset of Turbulence from the Receptivity Stage of Fluid Flows. Physical Review Letters, 2011, 107, 154501.	7.8	32
24	Temporal flow instability for Magnusâ€“Robins effect at high rotation rates. Journal of Fluids and Structures, 2003, 17, 941-953.	3.4	31
25	Vorticity dynamics of the three-dimensional Taylor-Green vortex problem. Physics of Fluids, 2019, 31, .	4.0	31
26	Solving Navierâ€“Stokes equation for flow past cylinders using single-block structured and overset grids. Journal of Computational Physics, 2010, 229, 178-199.	3.8	30
27	Direct numerical simulation of 2D transonic flows around airfoils. Computers and Fluids, 2013, 88, 19-37.	2.5	30
28	A new velocityâ€“vorticity formulation for direct numerical simulation of 3D transitional and turbulent flows. Journal of Computational Physics, 2015, 284, 230-260.	3.8	30
29	Universal instability modes in internal and external flows. Computers and Fluids, 2011, 40, 221-235.	2.5	29
30	Roles of bulk viscosity on Rayleigh-Taylor instability: Non-equilibrium thermodynamics due to spatio-temporal pressure fronts. Physics of Fluids, 2016, 28, .	4.0	29
31	FLOW PAST ROTATING CYLINDERS AT HIGH REYNOLDS NUMBERS USING HIGHER ORDER UPWIND SCHEME. Computers and Fluids, 1998, 27, 47-70.	2.5	27
32	An enstrophy-based linear and nonlinear receptivity theory. Physics of Fluids, 2018, 30, 054106.	4.0	27
33	Diffusion in inhomogeneous flows: Unique equilibrium state in an internal flow. Computers and Fluids, 2013, 88, 440-451.	2.5	26
34	Analysis of anisotropy of numerical wave solutions by high accuracy finite difference methods. Journal of Computational Physics, 2011, 230, 27-60.	3.8	25
35	Investigation of compressibility effects on dynamic stall of pitching airfoil. Physics of Fluids, 2017, 29, .	4.0	24
36	Upwind schemes and large eddy simulation. International Journal for Numerical Methods in Fluids, 1999, 31, 879-889.	1.6	23

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37	Flow past a circular cylinder executing rotary oscillation: Dimensionality of the problem. Physics of Fluids, 2018, 30, .	4.0	22
38	Design and analysis of a new filter for LES and DES. Computers and Structures, 2009, 87, 735-750.	4.4	20
39	Non-linear instability analysis of the two-dimensional Navier-Stokes equation: The Taylor-Green vortex problem. Physics of Fluids, 2018, 30, .	4.0	20
40	New explicit two-dimensional higher order filters. Computers and Fluids, 2010, 39, 1848-1863.	2.5	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.	3.8	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.	4.0	19
43	Roles of bulk viscosity on transonic shock-wave/boundary layer interaction. Physics of Fluids, 2019, 31, .	4.0	19
44	BY-PASS MECHANISM OF TRANSITION TO TURBULENCE. Journal of Fluids and Structures, 2002, 16, 15-29.	3.4	18
45	Control of flow using genetic algorithm for a circular cylinder executing rotary oscillation. Computers and Fluids, 2007, 36, 578-600.	2.5	18
46	Hybrid sixth order spatial discretization scheme for non-uniform Cartesian grids. Computers and Fluids, 2017, 157, 208-231.	2.5	18
47	Accelerated flow past a symmetric aerofoil: experiments and computations. Journal of Fluid Mechanics, 2007, 591, 255-288.	3.4	17
48	Adaptive multi-dimensional filters. Computers and Fluids, 2011, 49, 128-140.	2.5	17
49	A new alternating bi-diagonal compact scheme for non-uniform grids. Journal of Computational Physics, 2016, 310, 1-25.	3.8	17
50	Multiple Hopf bifurcations and flow dynamics inside a 2D singular lid driven cavity. Computers and Fluids, 2018, 166, 86-103.	2.5	17
51	Tracking disturbances in transitional and turbulent flows: Coherent structures. Physics of Fluids, 2019, 31, 124106.	4.0	17
52	Effects of free stream excitation on the boundary layer over a semi-infinite flat plate. Physics of Fluids, 2020, 32, .	4.0	17
53	Nonmodal nonlinear route of transition to two-dimensional turbulence. Physical Review Research, 2020, 2, .	3.6	17
54	Multiscale instabilities of Magnusâ€“Robins effect for compressible flow past rotating cylinder. Physics of Fluids, 2021, 33, .	4.0	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.	1.4	16
56	An improved method for calculating flow past flapping and hovering airfoils. Theoretical and Computational Fluid Dynamics, 2005, 19, 417-440.	2.2	14
57	Mixed convection flow past a vertical plate: Stability analysis and its direct simulation. International Journal of Thermal Sciences, 2009, 48, 461-474.	4.9	14
58	Error dynamics of diffusion equation: Effects of numerical diffusion and dispersive diffusion. Journal of Computational Physics, 2014, 266, 240-251.	3.8	14
59	Direct numerical simulation of vortex-induced instability for a zero-pressure-gradient boundary layer. Physical Review E, 2019, 100, 033118.	2.1	14
60	Role of non-zero bulk viscosity in three-dimensional Rayleigh-Taylor instability: Beyond Stokesâ€™ hypothesis. Computers and Fluids, 2021, 225, 104995.	2.5	14
61	Three-dimensional direct numerical simulation of Rayleighâ€“Taylor instability triggered by acoustic excitation. Physics of Fluids, 2022, 34, .	4.0	14
62	A new fluxâ€“vector splitting compact finite volume scheme. Journal of Computational Physics, 2005, 207, 261-281.	3.8	13
63	Enstrophy-based proper orthogonal decomposition for reduced-order modeling of flow past a cylinder. Physical Review E, 2015, 91, 043303.	2.1	13
64	Is Tollmien-Schlichting wave necessary for transition of zero pressure gradient boundary layer flow?. Physics of Fluids, 2019, 31, .	4.0	13
65	Grid sensitivity and role of error in computing a lid-driven cavity problem. Physical Review E, 2019, 99, 013305.	2.1	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.	3.8	13
67	A novel compressible enstrophy transport equation-based analysis of instability during Magnusâ€“Robins effects for high rotation rates. Physics of Fluids, 2022, 34, .	4.0	13
68	Thermal control of transonic shock-boundary layer interaction over a natural laminar flow airfoil. Physics of Fluids, 2021, 33, .	4.0	13
69	Orthogonal grid generation for Navier-Stokes computations. International Journal for Numerical Methods in Fluids, 1998, 28, 215-224.	1.6	12
70	Proper orthogonal decomposition of direct numerical simulation data of by-pass transition. Computers and Structures, 2004, 82, 2693-2703.	4.4	12
71	Dynamics and instability of a shielded vortex in close proximity of a wall. Computers and Fluids, 2012, 70, 166-175.	2.5	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.	2.5	11

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73	Navier-Stokes Solution by New Compact Scheme for Incompressible Flows. Journal of Scientific Computing, 2004, 21, 269-282.	2.3	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.	1.6	9
76	Subcritical instability on the attachment-line of an infinite swept wing. Journal of Fluid Mechanics, 2005, 529, 147-171.	3.4	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.	3.8	9
78	Global spectral analysis of multi-level time integration schemes: Numerical properties for error analysis. Applied Mathematics and Computation, 2017, 304, 41-57.	2.2	9
79	Global spectral analysis of three-time level integration schemes: Focusing phenomenon. Computers and Fluids, 2017, 157, 182-195.	2.5	9
80	Receptivity to Harmonic Excitation Following Nonimpulsive Start for Boundary-Layer Flows. AIAA Journal, 2017, 55, 3233-3238.	2.6	9
81	EFFECT OF FREE-STREAM TURBULENCE ON FLOW OVER AEROFOIL SECTION AT HIGH INCIDENCE. Journal of Fluids and Structures, 2001, 15, 671-690.	3.4	8
82	Nonlinear instability of mixed convection flow over a horizontal cylinder. Acta Mechanica, 2008, 201, 197-210.	2.1	8
83	Non-equilibrium Thermodynamics of Rayleighâ€“Taylor Instability. International Journal of Thermophysics, 2016, 37, 1.	2.1	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 shockâ€“boundary layer interactions due to surface heating and cooling on an airfoil. Physics of Fluids, 2022, 34, .	4.0	8
86	BOUNDARY LAYERS EXCITED BY LOW FREQUENCY DISTURBANCESâ€”KLEBANOFF MODE. Journal of Fluids and Structures, 1997, 11, 845-853.	3.4	7
87	Role of Time Integration in Computing Transitional Flows Caused by Wall Excitation. Journal of Scientific Computing, 2015, 65, 224-248.	2.3	7
88	Three-dimensional transition of zero-pressure-gradient boundary layer by impulsively and nonimpulsively started harmonic wall excitation. Physical Review E, 2018, 98, .	2.1	7
89	Effect of frequency and wavenumber on the three-dimensional routes of transition by wall excitation. Physics of Fluids, 2019, 31, 064107.	4.0	7
90	Non-linear instability analysis of the three-dimensional Navierâ€“Stokes equations: Taylorâ€“Green vortex problem. Physics of Fluids, 2020, 32, .	4.0	7

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91	Solution of the Orr-Sommerfeld equation for high wave numbers. Computers and Fluids, 1992, 21, 301-303.	2.5	6
92	Spatial Stability for Mixed Convection Boundary Layer over a Heated Horizontal Plate. Studies in Applied Mathematics, 2006, 117, 265-298.	2.4	6
93	A linear focusing mechanism for dispersive and non-dispersive wave problems. Journal of Computational Physics, 2011, 230, 1652-1675.	3.8	6
94	Direct numerical simulation of transitional mixed convection flows: Viscous and inviscid instability mechanisms. Physics of Fluids, 2013, 25, .	4.0	6
95	Enstrophy-based proper orthogonal decomposition of flow past rotating cylinder at super-critical rotating rate. Physics of Fluids, 2016, 28, .	4.0	6
96	Analysis of Pseudo-spectral Methods Used for Numerical Simulations of Turbulence. WSEAS Transactions on Computer Research, 2022, 10, 9-24.	0.5	6
97	The three-dimensional impulse response of a boundary layer to different types of wall excitation. Physics of Fluids, 2018, 30, .	4.0	5
98	Thermodynamic Merger of Fluctuation Theorem and Principle of Least Action: Case of Rayleighâ€“Taylor Instability. Journal of Non-Equilibrium Thermodynamics, 2019, 44, 363-371.	4.2	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.	0.4	4
101	A Critical Assessment of Simluations 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.	2.5	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.	2.3	3
106	High accuracy solution of bi-directional wave propagation in continuum mechanics. Journal of Computational Physics, 2015, 298, 209-236.	3.8	3
107	KdV Equation and Computations of Solitons: Nonlinear Error Dynamics. Journal of Scientific Computing, 2015, 62, 693-717.	2.3	3
108	Reduced order model of flows by time-scaling interpolation of DNS data. Advanced Modeling and Simulation in Engineering Sciences, 2018, 5, .	1.7	3

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109	Error growth and phase lag analysis for high Courant numbers. Applied Mathematics and Computation, 2019, 346, 374-384.	2.2	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 Navierâ€“Stokes Equation. AIAA Journal, 2017, 55, 180-194.	2.6	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.	2.5	2
114	Effects of Error on the Onset and Evolution of Rayleighâ€“Taylor Instability. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2018, , 233-239.	0.3	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.	0.2	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.	2.5	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.	2.2	1
120	Space-Time Resolution for Transitional and Turbulent Flows. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 31-54.	0.6	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.	0.3	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 Navierâ€“Stokes Equation. , 0, , 405-441.		0
125	Classification of Quasi-Linear Partial Differential Equations. , 0, , 31-37.		0
126	Waves and Spaceâ€“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 â€œComment on â€˜Roles of bulk viscosity on Rayleigh-Taylor instability: Non-equilibrium thermodynamics due to spatio-temporal pressure frontsâ€™â€•[Phys. Fluids 29, 019101 (2017)]. Physics of Fluids, 2017, 29, 019102.	4.0	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 Navierâ€“Stokes Equation. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 1-29.	0.6	0
140	Non-adiabatic Wall Effects on Transonic Shock/Boundary Layer Interaction. Lecture Notes in Mechanical Engineering, 2021, , 267-287.	0.4	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.	0.3	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 Navierâ€“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 Stressâ€“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