

# Tapan K Sengupta

## List of Publications by Year in descending order

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157  
papers

2,568  
citations

186265

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all docs

163  
docs citations

163  
times ranked

864  
citing authors

#	ARTICLE	IF	CITATIONS
1	Analysis of Pseudo-spectral Methods Used for Numerical Simulations of Turbulence. WSEAS Transactions on Computer Research, 2022, 10, 9-24.	0.5	6
2	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
3	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
4	10.1063/5.0091109.1. , 2022, , .		0
5	Three-dimensional direct numerical simulation of Rayleighâ€™Taylor instability triggered by acoustic excitation. Physics of Fluids, 2022, 34, .	4.0	14
6	Non-adiabatic Wall Effects on Transonic Shock/Boundary Layer Interaction. Lecture Notes in Mechanical Engineering, 2021, , 267-287.	0.4	0
7	Multiscale instabilities of Magnusâ€™Robins effect for compressible flow past rotating cylinder. Physics of Fluids, 2021, 33, .	4.0	16
8	10.1063/5.0047662.1. , 2021, , .		0
9	Role of non-zero bulk viscosity in three-dimensional Rayleigh-Taylor instability: Beyond Stokesâ€™ hypothesis. Computers and Fluids, 2021, 225, 104995.	2.5	14
10	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
11	Thermal control of transonic shock-boundary layer interaction over a natural laminar flow airfoil. Physics of Fluids, 2021, 33, .	4.0	13
12	Effects of free stream excitation on the boundary layer over a semi-infinite flat plate. Physics of Fluids, 2020, 32, .	4.0	17
13	Non-linear instability analysis of the three-dimensional Navierâ€™Stokes equations: Taylorâ€™Green vortex problem. Physics of Fluids, 2020, 32, .	4.0	7
14	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
15	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
16	Computational Aerodynamics and Aeroacoustics. , 2020, , .		4
17	Nonmodal nonlinear route of transition to two-dimensional turbulence. Physical Review Research, 2020, 2, .	3.6	17
18	A High Accuracy Preserving Parallel Algorithm for Compact Schemes for DNS. ACM Transactions on Parallel Computing, 2020, 7, 1-32.	1.4	16

#	ARTICLE	IF	CITATIONS
19	Computational Incompressible Aerodynamics. , 2020, , 177-238.		0
20	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
21	Elementary Aerodynamics. , 2020, , 41-118.		0
22	Acoustic Wave Equation. , 2020, , 357-377.		0
23	Governing Equations for Aerodynamics and Acoustics. , 2020, , 119-176.		0
24	Solutions of Computational Acoustic Problems Using DRP Schemes. , 2020, , 379-439.		0
25	Elements of Continuum Mechanics for Fluid Flow and General Stress-Strain System. , 2020, , 1-40.		0
26	Methodologies and Solutions of Computational Aeroacoustic Problems. , 2020, , 441-519.		0
27	Computational Compressible Aerodynamics. , 2020, , 239-355.		0
28	DNS of Wall-Bounded Turbulent Flow: An Introduction. , 2019, , 1-15.		0
29	3D Routes of Transition to Turbulence by STWF. , 2019, , 307-345.		0
30	Effect of frequency and wavenumber on the three-dimensional routes of transition by wall excitation. Physics of Fluids, 2019, 31, 064107.	4.0	7
31	Direct numerical simulation of vortex-induced instability for a zero-pressure-gradient boundary layer. Physical Review E, 2019, 100, 033118.	2.1	14
32	Roles of bulk viscosity on transonic shock-wave/boundary layer interaction. Physics of Fluids, 2019, 31, .	4.0	19
33	Space-Time Resolution for Transitional and Turbulent Flows. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 31-54.	0.6	1
34	Focusing Phenomenon in Numerical Solution of Two-Dimensional Navier-Stokes Equation. CISM International Centre for Mechanical Sciences, Courses and Lectures, 2019, , 1-29.	0.6	0
35	Thermodynamic Merger of Fluctuation Theorem and Principle of Least Action: Case of Rayleigh-Taylor Instability. Journal of Non-Equilibrium Thermodynamics, 2019, 44, 363-371.	4.2	5
36	Is Tollmien-Schlichting wave necessary for transition of zero pressure gradient boundary layer flow?. Physics of Fluids, 2019, 31, .	4.0	13

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37	Vorticity dynamics of the three-dimensional Taylor-Green vortex problem. <i>Physics of Fluids</i> , 2019, 31, .	4.0	31
38	Grid sensitivity and role of error in computing a lid-driven cavity problem. <i>Physical Review E</i> , 2019, 99, 013305.	2.1	13
39	Tracking disturbances in transitional and turbulent flows: Coherent structures. <i>Physics of Fluids</i> , 2019, 31, 124106.	4.0	17
40	Error growth and phase lag analysis for high Courant numbers. <i>Applied Mathematics and Computation</i> , 2019, 346, 374-384.	2.2	3
41	Dynamics of the Spatio-Temporal Wave-Front in 2D Framework. , 2019, , 275-305.		0
42	Receptivity and Instability. , 2019, , 121-222.		0
43	DNS of Navier-Stokes Equation. , 2019, , 17-120.		0
44	Nonlinear Theoretical and Computational Analysis of Fluid Flows. , 2019, , 223-274.		0
45	Multiple Hopf bifurcations and flow dynamics inside a 2D singular lid driven cavity. <i>Computers and Fluids</i> , 2018, 166, 86-103.	2.5	17
46	Reduced order model of flows by time-scaling interpolation of DNS data. <i>Advanced Modeling and Simulation in Engineering Sciences</i> , 2018, 5, .	1.7	3
47	The three-dimensional impulse response of a boundary layer to different types of wall excitation. <i>Physics of Fluids</i> , 2018, 30, .	4.0	5
48	Three-dimensional transition of zero-pressure-gradient boundary layer by impulsively and nonimpulsively started harmonic wall excitation. <i>Physical Review E</i> , 2018, 98, .	2.1	7
49	Flow past a circular cylinder executing rotary oscillation: Dimensionality of the problem. <i>Physics of Fluids</i> , 2018, 30, .	4.0	22
50	Non-linear instability analysis of the two-dimensional Navier-Stokes equation: The Taylor-Green vortex problem. <i>Physics of Fluids</i> , 2018, 30, .	4.0	20
51	An enstrophy-based linear and nonlinear receptivity theory. <i>Physics of Fluids</i> , 2018, 30, 054106.	4.0	27
52	Effects of Error on the Onset and Evolution of Rayleigh-Taylor Instability. <i>Notes on Numerical Fluid Mechanics and Multidisciplinary Design</i> , 2018, , 233-239.	0.3	2
53	Effects of Free Stream Turbulence on a Three-Dimensional Transitional Flow. <i>Notes on Numerical Fluid Mechanics and Multidisciplinary Design</i> , 2018, , 81-87.	0.3	0
54	DNS of Turbulence from Receptivity Stage: Role of Spatio-Temporal Wave Front. <i>Notes on Numerical Fluid Mechanics and Multidisciplinary Design</i> , 2018, , 41-53.	0.3	1

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55	10.1063/1.5063700.1., 2018, , .		0
56	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.	4.0	0
57	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
58	Spectral analysis of finite difference schemes for convection diffusion equation. Computers and Fluids, 2017, 150, 95-114.	2.5	35
59	Hybrid sixth order spatial discretization scheme for non-uniform Cartesian grids. Computers and Fluids, 2017, 157, 208-231.	2.5	18
60	Global spectral analysis of three-time level integration schemes: Focusing phenomenon. Computers and Fluids, 2017, 157, 182-195.	2.5	9
61	Receptivity to Harmonic Excitation Following Nonimpulsive Start for Boundary-Layer Flows. AIAA Journal, 2017, 55, 3233-3238.	2.6	9
62	Investigation of compressibility effects on dynamic stall of pitching airfoil. Physics of Fluids, 2017, 29, .	4.0	24
63	Frequency-Dependent Capacitance-Based Plasma Model for Direct Simulation of Navier-Stokes Equation. AIAA Journal, 2017, 55, 180-194.	2.6	2
64	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
65	Non-equilibrium Thermodynamics of Rayleigh-Taylor instability. Journal of Physics: Conference Series, 2016, 759, 012079.	0.4	4
66	A Critical Assessment of Simulations for Transitional and Turbulent Flows. , 2016, , 491-532.		4
67	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
68	Enstrophy-based proper orthogonal decomposition of flow past rotating cylinder at super-critical rotating rate. Physics of Fluids, 2016, 28, .	4.0	6
69	Different Routes of Transition by Spatio-Temporal Wave-Front. , 2016, , 68-83.		2
70	New Frequency Dependent Capacitance Based SDBD Plasma Model for Direct Simulation of 2D Navier-Stokes Equation. , 2016, , .		0
71	A new alternating bi-diagonal compact scheme for non-uniform grids. Journal of Computational Physics, 2016, 310, 1-25.	3.8	17
72	Non-equilibrium Thermodynamics of Rayleigh-Taylor Instability. International Journal of Thermophysics, 2016, 37, 1.	2.1	8

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73	A new velocity-vorticity formulation for direct numerical simulation of 3D transitional and turbulent flows. <i>Journal of Computational Physics</i> , 2015, 284, 230-260.	3.8	30
74	Analysis and Design of a New Dispersion Relation Preserving Alternate Direction Bidiagonal Compact Scheme. <i>Journal of Scientific Computing</i> , 2015, 64, 55-82.	2.3	3
75	High accuracy solution of bi-directional wave propagation in continuum mechanics. <i>Journal of Computational Physics</i> , 2015, 298, 209-236.	3.8	3
76	Enstrophy-based proper orthogonal decomposition for reduced-order modeling of flow past a cylinder. <i>Physical Review E</i> , 2015, 91, 043303.	2.1	13
77	Role of Time Integration in Computing Transitional Flows Caused by Wall Excitation. <i>Journal of Scientific Computing</i> , 2015, 65, 224-248.	2.3	7
78	KdV Equation and Computations of Solitons: Nonlinear Error Dynamics. <i>Journal of Scientific Computing</i> , 2015, 62, 693-717.	2.3	3
79	DNS of Low Reynolds Number Aerodynamics in the Presence of Free Stream Turbulence. <i>Frontiers in Aerospace Engineering</i> , 2015, 4, 20-34.	0.8	4
80	A dispersion relation preserving optimized upwind compact difference scheme for high accuracy flow simulations. <i>Journal of Computational Physics</i> , 2014, 278, 378-399.	3.8	34
81	Error dynamics of diffusion equation: Effects of numerical diffusion and dispersive diffusion. <i>Journal of Computational Physics</i> , 2014, 266, 240-251.	3.8	14
82	An explicit higher order difference scheme on a compact stencil for elliptic equations on curvilinear geometries. <i>Applied Mathematics and Computation</i> , 2014, 242, 143-158.	2.2	1
83	An improved orthogonal grid generation method for solving flows past highly cambered aerofoils with and without roughness elements. <i>Computers and Fluids</i> , 2014, 103, 275-289.	2.5	11
84	Diffusion in inhomogeneous flows: Unique equilibrium state in an internal flow. <i>Computers and Fluids</i> , 2013, 88, 440-451.	2.5	26
85	Direct numerical simulation of transitional mixed convection flows: Viscous and inviscid instability mechanisms. <i>Physics of Fluids</i> , 2013, 25, .	4.0	6
86	Direct numerical simulation of 2D transonic flows around airfoils. <i>Computers and Fluids</i> , 2013, 88, 19-37.	2.5	30
87	Dynamics and instability of a shielded vortex in close proximity of a wall. <i>Computers and Fluids</i> , 2012, 70, 166-175.	2.5	12
88	Spurious waves in discrete computation of wave phenomena and flow problems. <i>Applied Mathematics and Computation</i> , 2012, 218, 9035-9065.	2.2	40
89	Solution of linearized rotating shallow water equations by compact schemes with different grid-staggering strategies. <i>Journal of Computational Physics</i> , 2012, 231, 2300-2327.	3.8	19
90	On the divergence-free condition of velocity and vorticity in velocity-vorticity formulation of incompressible Navier-Stokes equation.. , 2011, , .		1

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91	A linear focusing mechanism for dispersive and non-dispersive wave problems. Journal of Computational Physics, 2011, 230, 1652-1675.	3.8	6
92	Space-time discretizing optimal DRP schemes for flow and wave propagation problems. Computers and Fluids, 2011, 47, 144-154.	2.5	49
93	Universal instability modes in internal and external flows. Computers and Fluids, 2011, 40, 221-235.	2.5	29
94	Adaptive multi-dimensional filters. Computers and Fluids, 2011, 49, 128-140.	2.5	17
95	Analysis of anisotropy of numerical wave solutions by high accuracy finite difference methods. Journal of Computational Physics, 2011, 230, 27-60.	3.8	25
96	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
97	Nonlinear Receptivity and Instability Studies by Proper Orthogonal Decomposition. , 2011, , .		4
98	Onset of Turbulence from the Receptivity Stage of Fluid Flows. Physical Review Letters, 2011, 107, 154501.	7.8	32
99	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
100	Optimal time advancing dispersion relation preserving schemes. Journal of Computational Physics, 2010, 229, 3623-3651.	3.8	43
101	New explicit two-dimensional higher order filters. Computers and Fluids, 2010, 39, 1848-1863.	2.5	19
102	Dynamical system approach to instability of flow past a circular cylinder. Journal of Fluid Mechanics, 2010, 656, 82-115.	3.4	52
103	Solving Navier-Stokes equation for flow past cylinders using single-block structured and overset grids. Journal of Computational Physics, 2010, 229, 178-199.	3.8	30
104	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
105	Further improvement and analysis of CCD scheme: Dissipation discretization and de-aliasing properties. Journal of Computational Physics, 2009, 228, 6150-6168.	3.8	59
106	Design and analysis of a new filter for LES and DES. Computers and Structures, 2009, 87, 735-750.	4.4	20
107	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
108	Nonlinear and Nonparallel Receptivity of Zero-pressure Gradient Boundary Layer. International Journal of Emerging Multidisciplinary Fluid Sciences, 2009, 1, 19-35.	0.5	8

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109	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
110	Nonlinear instability of mixed convection flow over a horizontal cylinder. Acta Mechanica, 2008, 201, 197-210.	2.1	8
111	Accelerated flow past a symmetric aerofoil: experiments and computations. Journal of Fluid Mechanics, 2007, 591, 255-288.	3.4	17
112	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
113	Control of flow using genetic algorithm for a circular cylinder executing rotary oscillation. Computers and Fluids, 2007, 36, 578-600.	2.5	18
114	Error dynamics: Beyond von Neumann analysis. Journal of Computational Physics, 2007, 226, 1211-1218.	3.8	92
115	A new compact scheme for parallel computing using domain decomposition. Journal of Computational Physics, 2007, 220, 654-677.	3.8	50
116	Spatial Stability for Mixed Convection Boundary Layer over a Heated Horizontal Plate. Studies in Applied Mathematics, 2006, 117, 265-298.	2.4	6
117	Symmetrized compact scheme for receptivity study of 2D transitional channel flow. Journal of Computational Physics, 2006, 215, 245-273.	3.8	34
118	High Accuracy Schemes for DNS and Acoustics. Journal of Scientific Computing, 2006, 26, 151-193.	2.3	73
119	Spatiotemporal Growing Wave Fronts in Spatially Stable Boundary Layers. Physical Review Letters, 2006, 96, 224504.	7.8	39
120	Flow past a circular cylinder in the vicinity of a plane wall. Journal of Fluids and Structures, 2005, 20, 403-423.	3.4	63
121	A new fluxâ€vector splitting compact finite volume scheme. Journal of Computational Physics, 2005, 207, 261-281.	3.8	13
122	An improved method for calculating flow past flapping and hovering airfoils. Theoretical and Computational Fluid Dynamics, 2005, 19, 417-440.	2.2	14
123	Subcritical instability on the attachment-line of an infinite swept wing. Journal of Fluid Mechanics, 2005, 529, 147-171.	3.4	9
124	A Comparative Study of Time Advancement Methods for Solving Navierâ€Stokes Equations. Journal of Scientific Computing, 2004, 21, 225-250.	2.3	37
125	Computation of leading-edge contamination. Computers and Fluids, 2004, 33, 927-951.	2.5	1
126	High Accuracy Compact Schemes and Gibbs' Phenomenon. Journal of Scientific Computing, 2004, 21, 253-268.	2.3	42



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127	Navier-Stokes Solution by New Compact Scheme for Incompressible Flows. Journal of Scientific Computing, 2004, 21, 269-282.	2.3	10
128	Proper orthogonal decomposition of direct numerical simulation data of by-pass transition. Computers and Structures, 2004, 82, 2693-2703.	4.4	12
129	Analysis of central and upwind compact schemes. Journal of Computational Physics, 2003, 192, 677-694.	3.8	159
130	Temporal flow instability for Magnus's effect at high rotation rates. Journal of Fluids and Structures, 2003, 17, 941-953.	3.4	31
131	Vortex-induced instability of an incompressible wall-bounded shear layer. Journal of Fluid Mechanics, 2003, 493, 277-286.	3.4	70
132	High accuracy compact schemes and Gibbs' phenomenon. , 2003, , 898-903.		0
133	Navier-Stokes solution by new compact schemes for incompressible flow. , 2003, , 1119-1124.		1
134	Proper orthogonal decomposition of by-pass transition data. , 2003, , 889-892.		0
135	BY-PASS MECHANISM OF TRANSITION TO TURBULENCE. Journal of Fluids and Structures, 2002, 16, 15-29.	3.4	18
136	A Taylor Vortex Photocatalytic Reactor for Water Purification. Industrial & Engineering Chemistry Research, 2001, 40, 5268-5281.	3.7	45
137	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
138	Spectral analysis of flux vector splitting finite volume methods. International Journal for Numerical Methods in Fluids, 2001, 37, 149-174.	1.6	9
139	Upwind schemes and large eddy simulation. International Journal for Numerical Methods in Fluids, 1999, 31, 879-889.	1.6	23
140	FLOW PAST ROTATING CYLINDERS AT HIGH REYNOLDS NUMBERS USING HIGHER ORDER UPWIND SCHEME. Computers and Fluids, 1998, 27, 47-70.	2.5	27
141	Orthogonal grid generation for Navier-Stokes computations. International Journal for Numerical Methods in Fluids, 1998, 28, 215-224.	1.6	12
142	UNSTEADY FLOW PAST ELLIPTIC CYLINDERS. Journal of Fluids and Structures, 1997, 11, 555-595.	3.4	39
143	BOUNDARY LAYERS EXCITED BY LOW FREQUENCY DISTURBANCES - KLEBANOFF MODE. Journal of Fluids and Structures, 1997, 11, 845-853.	3.4	7
144	Solution of the Orr-Sommerfeld equation for high wave numbers. Computers and Fluids, 1992, 21, 301-303.	2.5	6

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145	Governing Equations in Fluid Mechanics. , 0, , 8-30.		0
146	Solution of Navier–Stokes Equation. , 0, , 405-441.		0
147	Classification of Quasi-Linear Partial Differential Equations. , 0, , 31-37.		0
148	Waves and Space–Time Dependence in Computing. , 0, , 38-70.		0
149	Spatial and Temporal Discretizations of Partial Differential Equations. , 0, , 71-91.		0
150	Solution Methods for Parabolic Partial Differential Equations. , 0, , 92-105.		0
151	Solution Methods for Elliptic Partial Differential Equations. , 0, , 106-129.		0
152	Solution of Hyperbolic PDEs: Signal and Error Propagation. , 0, , 130-149.		0
153	Curvilinear Coordinate and Grid Generation. , 0, , 150-195.		0
154	Higher Accuracy Methods. , 0, , 256-340.		0
155	Introduction to Finite Volume and Finite Element Methods. , 0, , 341-404.		0
156	Recent Developments in Discrete Finite Difference Computing. , 0, , 442-534.		0
157	Instabilities of Flows and Transition to Turbulence. , 0, , .		52