Eli Turkel

List of Publications by Year
in descending order

163 papers	9,997 citations	81900 39 h-index	51608 86 g-index
171 all docs	171 docs citations	171 times ranked	3138 citing authors

#	Article	IF	Citations
1	Numerical solution of the Euler equations by finite volume methods using Runge Kutta time stepping schemes. , 1981, , .		1,739
2	Radiation boundary conditions for wave-like equations. Communications on Pure and Applied Mathematics, 1980, 33, 707-725.	3.1	870
3	Preconditioned methods for solving the incompressible and low speed compressible equations. Journal of Computational Physics, 1987, 72, 277-298.	3.8	697
4	Boundary Conditions for the Numerical Solution of Elliptic Equations in Exterior Regions. SIAM Journal on Applied Mathematics, 1982, 42, 430-451.	1.8	527
5	On central-difference and upwind schemes. Journal of Computational Physics, 1992, 101, 292-306.	3.8	458
6	PRECONDITIONING TECHNIQUES IN COMPUTATIONAL FLUID DYNAMICS. Annual Review of Fluid Mechanics, 1999, 31, 385-416.	25.0	374
7	Absorbing PML boundary layers for wave-like equations. Applied Numerical Mathematics, 1998, 27, 533-557.	2.1	276
8	Dissipative two-four methods for time-dependent problems. Mathematics of Computation, 1976, 30, 703-723.	2.1	244
9	Far field boundary conditions for compressible flows. Journal of Computational Physics, 1982, 48, 182-199.	3.8	230
10	Review of preconditioning methods for fluid dynamics. Applied Numerical Mathematics, 1993, 12, 257-284.	2.1	220
11	Implicit Schemes and LU Decompositions. Mathematics of Computation, 1981, 37, 385.	2.1	213
12	On accuracy conditions for the numerical computation of waves. Journal of Computational Physics, 1985, 59, 396-404.	3.8	183
13	An iterative method for the Helmholtz equation. Journal of Computational Physics, 1983, 49, 443-457.	3.8	182
14	A fourth-order accurate finite-difference scheme for the computation of elastic waves. Bulletin of the Seismological Society of America, 1986, 76, 1115-1132.	2.3	154
15	High-order finite difference methods for the Helmholtz equation. Computer Methods in Applied Mechanics and Engineering, 1998, 163, 343-358.	6.6	137
16	Assessment of preconditioning methods for multidimensional aerodynamics. Computers and Fluids, 1997, 26, 613-634.	2.5	120
17	Compact 2D and 3D sixth order schemes for the Helmholtz equation with variable wave number. Journal of Computational Physics, 2013, 232, 272-287.	3.8	114
18	Mappings and accuracy for Chebyshev pseudo-spectral approximations. Journal of Computational Physics, 1992, 101, 349-359.	3.8	108

#	ARTICLE	IF	CITATIONS
19	Artificial dissipation and central difference schemes for the Euler and Navier-Stokes equations. , 1987, , .		107
20	Accurate Finite Difference Methods for Time-Harmonic Wave Propagation. Journal of Computational Physics, 1995, 119, 252-270.	3.8	105
21	On Numerical Boundary Treatment of Hyperbolic Systems for Finite Difference and Finite Element Methods. SIAM Journal on Numerical Analysis, 1982, 19, 671-682.	2.3	91
22	Impairments in Perceptual Competency and Maintenance on a Visual Delayed Match-to-Sample Test in First-Episode Schizophrenia. Archives of General Psychiatry, 2003, 60, 238.	12.3	90
23	ANALYTICAL AND NUMERICAL STUDIES OF A FINITE ELEMENT PML FOR THE HELMHOLTZ EQUATION. Journal of Computational Acoustics, 2000, 08, 121-137.	1.0	87
24	A perfectly matched layer for the Helmholtz equation in a semi-infinite strip. Journal of Computational Physics, 2004, 201, 439-465.	3.8	85
25	Compact Implicit MacCormack-Type Schemes with High Accuracy. Journal of Computational Physics, 2000, 158, 51-70.	3.8	83
26	Effect of artificial viscosity on three-dimensional flow solutions. AIAA Journal, 1994, 32, 39-45.	2.6	82
27	On Some Numerical Dissipation Schemes. Journal of Computational Physics, 1998, 147, 518-544.	3.8	78
28	A multistage time-stepping scheme for the Navier-Stokes equations. , 1985, , .		75
29	Convergence acceleration of Runge–Kutta schemes for solving the Navier–Stokes equations. Journal of Computational Physics, 2007, 224, 365-388.	3.8	74
30	SIXTH-ORDER ACCURATE FINITE DIFFERENCE SCHEMES FOR THE HELMHOLTZ EQUATION. Journal of Computational Acoustics, 2006, 14, 339-351.	1.0	69
31	The numerical solution of the Helmholtz Equation for wave propagation problems in underwater acoustics. Computers and Mathematics With Applications, 1985, 11, 655-665.	2.7	65
32	Preconditioning methods for low-speed flows. , 1996, , .		62
33	Local preconditioners for steady and unsteady flow applications. ESAIM: Mathematical Modelling and Numerical Analysis, 2005, 39, 515-535.	1.9	58
34	Global properties of pseudospectral methods. Journal of Computational Physics, 1989, 81, 239-276.	3.8	56
35	Algorithmic handwriting analysis of Judah's military correspondence sheds light on composition of biblical texts. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 4664-4669.	7.1	56
36	The Method of Difference Potentials for the Helmholtz Equation Using Compact High Order Schemes. Journal of Scientific Computing, 2012, 53, 150-193.	2.3	49

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37	An implicit high-order spectral difference approach for large eddy simulation. Journal of Computational Physics, 2010, 229, 5373-5393.	3.8	48
38	Nonreflecting boundary conditions for jet flow computations. AIAA Journal, 1995, 33, 2264-2270.	2.6	47
39	On the practical use of high-order methods for hyperbolic systems. Journal of Computational Physics, 1980, 35, 319-340.	3.8	44
40	Fourth order compact implicit method for the Maxwell equations with discontinuous coefficients. Applied Numerical Mathematics, 2000, 33, 125-134.	2.1	44
41	Numerical Simulation of Time-Harmonic Waves in Inhomogeneous Media using Compact High Order Schemes. Communications in Computational Physics, 2011, 9, 520-541.	1.7	43
42	On the interaction of a sound pulse with the shear layer of an axisymmetric jet. Journal of Sound and Vibration, 1981, 74, 281-301.	3.9	40
43	Accuracy of schemes with nonuniform meshes for compressible fluid flows. Applied Numerical Mathematics, 1986, 2, 529-550.	2.1	40
44	Phase error and stability of second order methods for hyperbolic problems. I. Journal of Computational Physics, 1974, 15, 226-250.	3.8	38
45	A Compact Fourth Order Scheme for the Helmholtz Equation in Polar Coordinates. Journal of Scientific Computing, 2010, 45, 26-47.	2.3	38
46	Boundary conditions for multistep finite-difference methods for time-dependent equations. Journal of Computational Physics, 1978, 26, 181-196.	3.8	37
47	Central Difference TVD Schemes for Time Dependent and Steady State Problems. Journal of Computational Physics, 1993, 107, 297-308.	3.8	36
48	Simulation of Synthetic Jets Using Unsteady Reynolds-Averaged Navier-Stokes Equations. AIAA Journal, 2006, 44, 217-224.	2.6	34
49	Time reversal with partial information for wave refocusing and scatterer identification. Computer Methods in Applied Mechanics and Engineering, 2012, 213-216, 223-242.	6.6	33
50	A High Order Compact Time/Space Finite Difference Scheme for the Wave Equation with Variable Speed of Sound. Journal of Scientific Computing, 2018, 76, 777-811.	2.3	30
51	External flow computations using global boundary conditions. AIAA Journal, 1996, 34, 700-706.	2.6	29
52	A High-Order Numerical Method for the Helmholtz Equation with Nonstandard Boundary Conditions. SIAM Journal of Scientific Computing, 2013, 35, A2255-A2292.	2.8	28
53	Numerical solution of the wave equation with variable wave speed on nonconforming domains by high-order difference potentials. Journal of Computational Physics, 2018, 354, 26-42.	3.8	28
54	Difference Schemes with Fourth Order Accuracy for Hyperbolic Equations. SIAM Journal on Applied Mathematics, 1975, 29, 329-351.	1.8	27

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55	On the construction of a high order difference scheme for complex domains in a Cartesian grid. Applied Numerical Mathematics, 2000, 33, 113-124.	2.1	27
56	Symmetrization of the fluid dynamic matrices with applications. Mathematics of Computation, 1973, 27, 729-729.	2.1	26
57	Outflow Boundary Conditions for Fluid Dynamics. SIAM Journal on Scientific and Statistical Computing, 1982, 3, 250-259.	1.5	26
58	Progress in computational physics. Computers and Fluids, 1983, 11, 121-144.	2.5	26
59	Numerical simulation of boundary-layer excitation by surface heating/cooling. AIAA Journal, 1986, 24, 1095-1101.	2.6	26
60	Time-reversed absorbing condition: application to inverse problems. Inverse Problems, 2011, 27, 065003.	2.0	26
61	Stability of pseudospectral and finite-difference methods for variable coefficient problems. Mathematics of Computation, 1981, 37, 293-305.	2.1	25
62	Local absorbing boundary conditions for elliptical shaped boundaries. Journal of Computational Physics, 2008, 227, 8254-8267.	3.8	25
63	Implicit LU-SGS algorithm for high-order methods on unstructured grid with p-multigrid strategy for solving the steady Navierâ€"Stokes equations. Journal of Computational Physics, 2010, 229, 828-850.	3.8	25
64	High order numerical simulation of the transmission and scattering of waves using the method of difference potentials. Journal of Computational Physics, 2013, 243, 305-322.	3.8	24
65	Compact High Order Accurate Schemes for the Three Dimensional Wave Equation. Journal of Scientific Computing, 2019, 81, 1181-1209.	2.3	22
66	Multiple crack weight for solution of multiple interacting cracks by meshless numerical methods. International Journal for Numerical Methods in Engineering, 2006, 67, 1146-1159.	2.8	21
67	On surface radiation conditions for an ellipse. Journal of Computational and Applied Mathematics, 2010, 234, 1647-1655.	2.0	20
68	Time reversal for crack identification. Computational Mechanics, 2014, 54, 443-459.	4.0	20
69	Time Reversal for Elastic Wave Refocusing and Scatterer Location Recovery. Journal of Computational Acoustics, 2015, 23, 1450013.	1.0	20
70	Binarization of First Temple Period Inscriptions: Performance of Existing Algorithms and a New Registration Based Scheme. , 2012, , .		19
71	Compact high order schemes with gradient-direction derivatives for absorbing boundary conditions. Journal of Computational Physics, 2015, 297, 295-315.	3.8	19
72	Obstacle segmentation based on the wave equation and deep learning. Journal of Computational Physics, 2020, 413, 109458.	3.8	19

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73	Symmetric hyperbolic difference schemes and matrix problems. Linear Algebra and Its Applications, 1977, 16, 109-129.	0.9	17
74	Aspects of a high-resolution scheme for the Navier-Stokes equations. , 1993, , .		17
75	Improving the accuracy of central difference schemes. , 1989, , 586-591.		17
76	On Time Discretizations for Spectral Methods. Studies in Applied Mathematics, 1980, 63, 68-86.	2.4	16
77	A survey of asynchronous finite-difference methods for parabolic PDEs on multiprocessors. Applied Numerical Mathematics, 1993, 12, 27-45.	2.1	16
78	Improved accuracy for the Helmholtz equation in unbounded domains. International Journal for Numerical Methods in Engineering, 2004, 59, 1963-1988.	2.8	16
79	Solving the Helmholtz equation for general smooth geometry using simple grids. Wave Motion, 2016, 62, 75-97.	2.0	16
80	Combined arrival-time imaging and time reversal for scatterer identification. Computer Methods in Applied Mechanics and Engineering, 2017, 313, 279-302.	6.6	16
81	Nonunique Solutions to the Transonic Potential Flow Equation. AIAA Journal, 1984, 22, 145-146.	2.6	15
82	On the interaction of a sound pulse with the shear layer of an axisymmetric jet, III: Non-linear effects. Journal of Sound and Vibration, 1986, 107, 167-175.	3.9	15
83	Local preconditioning in a stagnation point. , 1995, , .		15
84	Iterative schemes for high order compact discretizations to the exterior Helmholtz equation. ESAIM: Mathematical Modelling and Numerical Analysis, 2012, 46, 647-660.	1.9	15
85	A method of boundary equations for unsteady hyperbolic problems in 3D. Journal of Computational Physics, 2018, 365, 294-323.	3.8	15
86	A general approach for high order absorbing boundary conditions for the Helmholtz equation. Journal of Computational Physics, 2013, 242, 387-404.	3.8	14
87	Computation of singular solutions to the Helmholtz equation with high order accuracy. Applied Numerical Mathematics, 2015, 93, 215-241.	2.1	14
88	High-order numerical solution of the Helmholtz equation for domains with reentrant corners. Applied Numerical Mathematics, 2017, 118, 87-116.	2.1	14
89	Multidimensional difference schemes with fourth-order accuracy. Journal of Computational Physics, 1976, 21, 85-113.	3.8	13
90	Phase error and stability of second order methods for hyperbolic problems. II. Journal of Computational Physics, 1974, 15, 251-265.	3.8	12

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91	Extension of multigrid methodology to supersonic/hypersonic 3-D viscous flows. International Journal for Numerical Methods in Fluids, 1993, 17, 825-837.	1.6	12
92	Fourth order method for Maxwell equations on a staggered mesh. , 0, , .		12
93	Introduction to the special issue on absorbing boundary conditions. Applied Numerical Mathematics, 1998, 27, 327-329.	2.1	12
94	High-order accurate modeling of electromagnetic wave propagation across media â€" Grid conforming bodies. Journal of Computational Physics, 2006, 218, 816-835.	3.8	12
95	Quality Evaluation of Facsimiles of Hebrew First Temple Period Inscriptions. , 2012, , .		12
96	Dissipative Two-Four Methods for Time-Dependent Problems. Mathematics of Computation, 1976, 30, 703.	2.1	12
97	Pressure updating methods for the steady-state fluid equations. , 1995, , .		11
98	Edge-enhancement postprocessing using artificial dissipation. IEEE Transactions on Image Processing, 2006, 15, 1486-1498.	9.8	11
99	Numerical Methods and Nature. Journal of Scientific Computing, 2006, 28, 549-570.	2.3	11
100	Stopping Criteria for Anisotropic PDEs in Image Processing. Journal of Scientific Computing, 2010, 45, 333-347.	2.3	11
101	Time reversed absorbing conditions. Comptes Rendus Mathematique, 2010, 348, 1063-1067.	0.3	11
102	Multispectral imaging reveals biblical-period inscription unnoticed for half a century. PLoS ONE, 2017, 12, e0178400.	2.5	11
103	Potential Contrast &#x2013; A New Image Quality Measure. IS&T International Symposium on Electronic Imaging, 2017, 29, 52-58.	0.4	11
104	Direct implementation of high order BGT artificial boundary conditions. Journal of Computational Physics, 2019, 376, 98-128.	3.8	11
105	Implicit schemes and ?? decompositions. Mathematics of Computation, 1981, 37, 385-397.	2.1	10
106	Topics in spectral methods. , 1985, , 115-155.		10
107	Numerical simulations of a high Mach number jet flow. , 1993, , .		10
108	Choice of Variables and Preconditioning for Time Dependent Problems. , 2003, , .		10

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109	Obstacle identification using the TRAC algorithm with a second‑order ABC. International Journal for Numerical Methods in Engineering, 2019, 118, 61-92.	2.8	10
110	High order accurate solutions of viscous problems. , 1993, , .		10
111	Robust low speed preconditioning for viscous high lift flows. , 2002, , .		9
112	Composite Methods for Hyperbolic Equations. SIAM Journal on Numerical Analysis, 1977, 14, 744-759.	2.3	8
113	Application of Runge-Kutta scheme for high-speed inviscid internal flows. , 1986, , .		8
114	Pseudo-time algorithms for the Navier-Stokes equations. Applied Numerical Mathematics, 1986, 2, 321-333.	2.1	8
115	On Central-Difference and Upwind Schemes. , 1992, , 167-181.		8
116	Computational Time Reversal for NDT Applications Using Experimental Data. Journal of Nondestructive Evaluation, 2017, 36, 1.	2.4	8
117	Pseudo-compressibility methods for the incompressible flow equations. , 1993, , .		7
118	A High-Order Accurate Method for Frequency Domain Maxwell Equations with Discontinuous Coefficients. Journal of Scientific Computing, 2006, 27, 75-95.	2.3	7
119	Acceleration methods for multi-physics compressible flow. Journal of Computational Physics, 2018, 358, 201-234.	3.8	7
120	The Quest for Diagonalization of Differential Systems. ICASE/LaRC Interdisciplinary Series in Science and Engineering, 1998, , 351-369.	0.1	6
121	Uni-directional implicit acceleration techniques for compressible Navier-Stokes solvers. , 1999, , .		6
122	An augmented time reversal method for source and scatterer identification. Journal of Computational Physics, 2018, 375, 99-119.	3.8	6
123	Algorithmic handwriting analysis of the Samaria inscriptions illuminates bureaucratic apparatus in biblical Israel. PLoS ONE, 2020, 15, e0227452.	2.5	6
124	Evaluating glyph binarizations based on their properties. , 2013, , .		5
125	Numerical Solution of 3D Exterior Unsteady Wave Propagation Problems Using Boundary Operators. SIAM Journal of Scientific Computing, 2020, 42, A3462-A3488.	2.8	5
126	Diffusion and transport of a fully collisional plasma. Physics of Fluids, 1986, 29, 741.	1.4	4

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127	An effective multigrid method for high-speed flows. Communications in Applied Numerical Methods, 1992, 8, 671-681.	0.5	4
128	Analysis of the Error for Approximations to Systems of Hyperbolic Equations. Journal of Computational Physics, 1999, 151, 997-1007.	3.8	4
129	Assessment of Local Preconditioners for Steady State and Time Dependent Flows. , 2004, , .		4
130	Simultaneous Scatterer Shape Estimation and Partial Aperture Far-Field Pattern Denoising. Communications in Computational Physics, 2012, 11, 271-284.	1.7	4
131	Beyond the Ground Truth: Alternative Quality Measures of Document Binarizations. , 2016, , .		4
132	Writer Identification in Modern and Historical Documents via Binary Pixel Patterns, Kolmogorovâ€Smirnov Test and Fisherâ€™s Method. Journal of Imaging Science and Technology, 2017, 61, 104041-104049.	0.5	4
133	Scatterer identification in a 2D geophysical medium using an augmented computational time reversal method. International Journal for Numerical and Analytical Methods in Geomechanics, 2021, 45, 867-892.	3.3	4
134	PRECONDITIONED CONJUGATE GRADIENT METHODS FOR THE HELMHOLTZ EQUATION. , 1984, , 233-243.		4
135	Non-iterative domain decomposition for the Helmholtz equation with strong material discontinuities. Applied Numerical Mathematics, 2022, 173, 51-78.	2.1	4
136	Ambipolar Diffusion in a Multi-Species Medium. Physica Scripta, 1985, 31, 207-209.	2.5	3
137	The Iterative Solver RISOLV with Application to the Exterior Helmholtz Problem. SIAM Journal of Scientific Computing, 2010, 32, 463-475.	2.8	3
138	Computerized Paleographic Investigation of Hebrew Iron Age Ostraca. Radiocarbon, 2015, 57, 317-325.	1.8	3
139	A compact threeâ€dimensional fourthâ€order scheme forÂelasticity using the firstâ€order formulation. International Journal for Numerical Methods in Engineering, 2021, 122, 6341.	2.8	3
140	A high order compact time/space finite difference scheme for the 2D and 3D wave equation with a damping layer. Journal of Computational Physics, 2022, 460, 111161.	3.8	3
141	Symmetrization of the Fluid Dynamic Matrices with Applications. Mathematics of Computation, 1973, 27, 729.	2.1	3
142	Simulation of Synthetic Jets in Quiescent Air Using Unsteady Reynolds Averaged Navier-Stokes Equations. , 2004, , .		2
143	Convergence Acceleration for Multistage Time-Stepping Schemes. , 2006, , .		2
144	Towards Letter Shape Prior and Paleographic Tables Estimation in Hebrew First Temple Period Ostraca. , 2017, , .		2

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145	Adaptive Time Steps for Compressible Flows Based on Dual-Time Stepping and a RK/Implicit Smoother. Journal of Scientific Computing, 2019, 81, 1409-1428.	2.3	2
146	Solution of three-dimensional multiple scattering problems by the method of difference potentials. Wave Motion, 2021, 107, 102822.	2.0	2
147	Chan-Vese Revisited: Relation to Otsuâ€™s Method and a Parameter-Free Non-PDE Solution via Morphological Framework. Lecture Notes in Computer Science, 2016, , 203-212.	1.3	2
148	Analysis of a RK/Implicit Smoother for Multigrid. , 2011, , 409-417.		2
149	Algorithms for the Euler and Navier-Stokes Equations for Supercomputers. , 1985, , 155-172.		2
150	On acceleration of MacCormack's scheme. Journal of Computational Physics, 1978, 26, 252-256.	3.8	1
151	Extrapolation methods for dynamic partial differential equations. Numerische Mathematik, 1978, 29, 269-285.	1.9	1
152	REVIEW OF PRECONDITIONING FOR THE COMPRESSIBLE FLUID DYNAMIC EQUATIONS. , 1998, , 449-477.		1
153	Spiral weight for modeling cracks in meshless numerical methods. Computational Mechanics, 2006, 38, 101-111.	4.0	1
154	The inverse problem of an impenetrable sound-hard body in acoustic scattering. Journal of Physics: Conference Series, 2008, 135, 012079.	0.4	1
155	Simulation of Compressible Turbulent Flows with an Implicit LU-SGS Algorithm for High-Order Spectral Difference Method on Unstructured Grids. , 2009, , .		1
156	Comments on iterative schemes for high order compact discretizations to the exterior Helmholtz equation. ESAIM: Mathematical Modelling and Numerical Analysis, 2015, 49, 221-223.	1.9	1
157	Wave Phenomena in a High Reynolds Number Compressible Boundary Layer. , 1987, , 188-205.		1
158	Stability of Pseudospectral and Finite-Difference Methods for Variable Coefficient Problems. Mathematics of Computation, 1981, 37, 293.	2.1	1
159	Long time asymptotics of a system for plasma diffusion. Transport Theory and Statistical Physics, 1987, 16, 377-391.	0.4	0
160	On buffer layers as non-reflecting computational boundaries. , 1996, , .		0
161	Convective Wave Equation and Time Reversal Process for Source Refocusing. Journal of Theoretical and Computational Acoustics, 2018, 26, 1850016.	1.1	0
162	Literacy in Judah and Israel. Near Eastern Archaeology, 2021, 84, 148-158.	0.2	0

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163	Boundary conditions for jet flow computations. , 1994, , .		0