Eli Turkel

List of Publications by Year
in descending order

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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	Non-iterative domain decomposition for the Helmholtz equation with strong material discontinuities. Applied Numerical Mathematics, 2022, 173, 51-78.	2.1	4
2	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
3	Literacy in Judah and Israel. Near Eastern Archaeology, 2021, 84, 148-158.	0.2	0
4	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
5	Solution of three-dimensional multiple scattering problems by the method of difference potentials. Wave Motion, 2021, 107, 102822.	2.0	2
6	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
7	Numerical Solution of 3D Exterior Unsteady Wave Propagation Problems Using Boundary Operators. SIAM Journal of Scientific Computing, 2020, 42, A3462-A3488.	2.8	5
8	Obstacle segmentation based on the wave equation and deep learning. Journal of Computational Physics, 2020, 413, 109458.	3.8	19
9	Algorithmic handwriting analysis of the Samaria inscriptions illuminates bureaucratic apparatus in biblical Israel. PLoS ONE, 2020, 15, e0227452.	2.5	6
10	Obstacle identification using the TRAC algorithm with a secondâ€order ABC. International Journal for Numerical Methods in Engineering, 2019, 118, 61-92.	2.8	10
11	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
12	Compact High Order Accurate Schemes for the Three Dimensional Wave Equation. Journal of Scientific Computing, 2019, 81, 1181-1209.	2.3	22
13	Direct implementation of high order BGT artificial boundary conditions. Journal of Computational Physics, 2019, 376, 98-128.	3.8	11
14	A method of boundary equations for unsteady hyperbolic problems in 3D. Journal of Computational Physics, 2018, 365, 294-323.	3.8	15
15	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
16	Acceleration methods for multi-physics compressible flow. Journal of Computational Physics, 2018, 358, 201-234.	3.8	7
17	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
18	Convective Wave Equation and Time Reversal Process for Source Refocusing. Journal of Theoretical and Computational Acoustics, 2018, 26, 1850016.	1.1	0

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19	An augmented time reversal method for source and scatterer identification. Journal of Computational Physics, 2018, 375, 99-119.	3.8	6
20	High-order numerical solution of the Helmholtz equation for domains with reentrant corners. Applied Numerical Mathematics, 2017, 118, 87-116.	2.1	14
21	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
22	Computational Time Reversal for NDT Applications Using Experimental Data. Journal of Nondestructive Evaluation, 2017, 36, 1.	2.4	8
23	Combined arrival-time imaging and time reversal for scatterer identification. Computer Methods in Applied Mechanics and Engineering, 2017, 313, 279-302.	6.6	16
24	Towards Letter Shape Prior and Paleographic Tables Estimation in Hebrew First Temple Period Ostraca. , 2017, , .		2
25	Multispectral imaging reveals biblical-period inscription unnoticed for half a century. PLoS ONE, 2017, 12, e0178400.	2.5	11
26	Potential Contrast – A New Image Quality Measure. IS&T International Symposium on Electronic Imaging, 2017, 29, 52-58.	0.4	11
27	Beyond the Ground Truth: Alternative Quality Measures of Document Binarizations. , 2016, , .		4
28	Algorithmic handwriting analysis of Judahâ€™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
29	Solving the Helmholtz equation for general smooth geometry using simple grids. Wave Motion, 2016, 62, 75-97.	2.0	16
30	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
31	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
32	Computerized Paleographic Investigation of Hebrew Iron Age Ostraca. Radiocarbon, 2015, 57, 317-325.	1.8	3
33	Computation of singular solutions to the Helmholtz equation with high order accuracy. Applied Numerical Mathematics, 2015, 93, 215-241.	2.1	14
34	Time Reversal for Elastic Wave Refocusing and Scatterer Location Recovery. Journal of Computational Acoustics, 2015, 23, 1450013.	1.0	20
35	Compact high order schemes with gradient-direction derivatives for absorbing boundary conditions. Journal of Computational Physics, 2015, 297, 295-315.	3.8	19
36	Time reversal for crack identification. Computational Mechanics, 2014, 54, 443-459.	4.0	20

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37	A general approach for high order absorbing boundary conditions for the Helmholtz equation. Journal of Computational Physics, 2013, 242, 387-404.	3.8	14
38	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
39	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
40	Evaluating glyph binarizations based on their properties. , 2013, , .		5
41	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
42	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
43	Binarization of First Temple Period Inscriptions: Performance of Existing Algorithms and a New Registration Based Scheme. , 2012, , .		19
44	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
45	Simultaneous Scatterer Shape Estimation and Partial Aperture Far-Field Pattern Denoising. Communications in Computational Physics, 2012, 11, 271-284.	1.7	4
46	Quality Evaluation of Facsimiles of Hebrew First Temple Period Inscriptions. , 2012, , .		12
47	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
48	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
49	Time-reversed absorbing condition: application to inverse problems. Inverse Problems, 2011, 27, 065003.	2.0	26
50	Analysis of a RK/Implicit Smoother for Multigrid. , 2011, , 409-417.		2
51	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
52	A Compact Fourth Order Scheme for the Helmholtz Equation in Polar Coordinates. Journal of Scientific Computing, 2010, 45, 26-47.	2.3	38
53	Stopping Criteria for Anisotropic PDEs in Image Processing. Journal of Scientific Computing, 2010, 45, 333-347.	2.3	11
54	An implicit high-order spectral difference approach for large eddy simulation. Journal of Computational Physics, 2010, 229, 5373-5393.	3.8	48

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55	On surface radiation conditions for an ellipse. Journal of Computational and Applied Mathematics, 2010, 234, 1647-1655.	2.0	20
56	Time reversed absorbing conditions. Comptes Rendus Mathematique, 2010, 348, 1063-1067.	0.3	11
57	The Iterative Solver RISOLV with Application to the Exterior Helmholtz Problem. SIAM Journal of Scientific Computing, 2010, 32, 463-475.	2.8	3
58	Simulation of Compressible Turbulent Flows with an Implicit LU-SGS Algorithm for High-Order Spectral Difference Method on Unstructured Grids. , 2009, , .		1
59	Local absorbing boundary conditions for elliptical shaped boundaries. Journal of Computational Physics, 2008, 227, 8254-8267.	3.8	25
60	The inverse problem of an impenetrable sound-hard body in acoustic scattering. Journal of Physics: Conference Series, 2008, 135, 012079.	0.4	1
61	Convergence acceleration of Rungeâ€“Kutta schemes for solving the Navierâ€“Stokes equations. Journal of Computational Physics, 2007, 224, 365-388.	3.8	74
62	SIXTH-ORDER ACCURATE FINITE DIFFERENCE SCHEMES FOR THE HELMHOLTZ EQUATION. Journal of Computational Acoustics, 2006, 14, 339-351.	1.0	69
63	Convergence Acceleration for Multistage Time-Stepping Schemes. , 2006, , .		2
64	Edge-enhancement postprocessing using artificial dissipation. IEEE Transactions on Image Processing, 2006, 15, 1486-1498.	9.8	11
65	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
66	A High-Order Accurate Method for Frequency Domain Maxwell Equations with Discontinuous Coefficients. Journal of Scientific Computing, 2006, 27, 75-95.	2.3	7
67	Numerical Methods and Nature. Journal of Scientific Computing, 2006, 28, 549-570.	2.3	11
68	Spiral weight for modeling cracks in meshless numerical methods. Computational Mechanics, 2006, 38, 101-111.	4.0	1
69	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
70	Simulation of Synthetic Jets Using Unsteady Reynolds-Averaged Navier-Stokes Equations. AIAA Journal, 2006, 44, 217-224.	2.6	34
71	Local preconditioners for steady and unsteady flow applications. ESAIM: Mathematical Modelling and Numerical Analysis, 2005, 39, 515-535.	1.9	58
72	A perfectly matched layer for the Helmholtz equation in a semi-infinite strip. Journal of Computational Physics, 2004, 201, 439-465.	3.8	85

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73	Improved accuracy for the Helmholtz equation in unbounded domains. International Journal for Numerical Methods in Engineering, 2004, 59, 1963-1988.	2.8	16
74	Assessment of Local Preconditioners for Steady State and Time Dependent Flows. , 2004, , .		4
75	Simulation of Synthetic Jets in Quiescent Air Using Unsteady Reynolds Averaged Navier-Stokes Equations. , 2004, , .		2
76	Choice of Variables and Preconditioning for Time Dependent Problems. , 2003, , .		10
77	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
78	Robust low speed preconditioning for viscous high lift flows. , 2002, , .		9
79	Compact Implicit MacCormack-Type Schemes with High Accuracy. Journal of Computational Physics, 2000, 158, 51-70.	3.8	83
80	Fourth order compact implicit method for the Maxwell equations with discontinuous coefficients. Applied Numerical Mathematics, 2000, 33, 125-134.	2.1	44
81	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
82	ANALYTICAL AND NUMERICAL STUDIES OF A FINITE ELEMENT PML FOR THE HELMHOLTZ EQUATION. Journal of Computational Acoustics, 2000, 08, 121-137.	1.0	87
83	Analysis of the Error for Approximations to Systems of Hyperbolic Equations. Journal of Computational Physics, 1999, 151, 997-1007.	3.8	4
84	Uni-directional implicit acceleration techniques for compressible Navier-Stokes solvers. , 1999, , .		6
85	PRECONDITIONING TECHNIQUES IN COMPUTATIONAL FLUID DYNAMICS. Annual Review of Fluid Mechanics, 1999, 31, 385-416.	25.0	374
86	Absorbing PML boundary layers for wave-like equations. Applied Numerical Mathematics, 1998, 27, 533-557.	2.1	276
87	Introduction to the special issue on absorbing boundary conditions. Applied Numerical Mathematics, 1998, 27, 327-329.	2.1	12
88	On Some Numerical Dissipation Schemes. Journal of Computational Physics, 1998, 147, 518-544.	3.8	78
89	High-order finite difference methods for the Helmholtz equation. Computer Methods in Applied Mechanics and Engineering, 1998, 163, 343-358.	6.6	137
90	The Quest for Diagonalization of Differential Systems. ICASE/LaRC Interdisciplinary Series in Science and Engineering, 1998, , 351-369.	0.1	6

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91	REVIEW OF PRECONDITIONING FOR THE COMPRESSIBLE FLUID DYNAMIC EQUATIONS. , 1998, , 449-477.		1
92	Assessment of preconditioning methods for multidimensional aerodynamics. Computers and Fluids, 1997, 26, 613-634.	2.5	120
93	Preconditioning methods for low-speed flows. , 1996, , .		62
94	On buffer layers as non-reflecting computational boundaries. , 1996, , .		0
95	External flow computations using global boundary conditions. AIAA Journal, 1996, 34, 700-706.	2.6	29
96	Local preconditioning in a stagnation point. , 1995, , .		15
97	Accurate Finite Difference Methods for Time-Harmonic Wave Propagation. Journal of Computational Physics, 1995, 119, 252-270.	3.8	105
98	Nonreflecting boundary conditions for jet flow computations. AIAA Journal, 1995, 33, 2264-2270.	2.6	47
99	Pressure updating methods for the steady-state fluid equations. , 1995, , .		11
100	Effect of artificial viscosity on three-dimensional flow solutions. AIAA Journal, 1994, 32, 39-45.	2.6	82
101	Boundary conditions for jet flow computations. , 1994, , .		0
102	Central Difference TVD Schemes for Time Dependent and Steady State Problems. Journal of Computational Physics, 1993, 107, 297-308.	3.8	36
103	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
104	A survey of asynchronous finite-difference methods for parabolic PDEs on multiprocessors. Applied Numerical Mathematics, 1993, 12, 27-45.	2.1	16
105	Review of preconditioning methods for fluid dynamics. Applied Numerical Mathematics, 1993, 12, 257-284.	2.1	220
106	Aspects of a high-resolution scheme for the Navier-Stokes equations. , 1993, , .		17
107	Pseudo-compressibility methods for the incompressible flow equations. , 1993, , .		7
108	Numerical simulations of a high Mach number jet flow. , 1993, , .		10

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109	High order accurate solutions of viscous problems. , 1993, , .		10
110	On Central-Difference and Upwind Schemes. , 1992, , 167-181.		8
111	On central-difference and upwind schemes. Journal of Computational Physics, 1992, 101, 292-306.	3.8	458
112	Mappings and accuracy for Chebyshev pseudo-spectral approximations. Journal of Computational Physics, 1992, 101, 349-359.	3.8	108
113	An effective multigrid method for high-speed flows. Communications in Applied Numerical Methods, 1992, 8, 671-681.	0.5	4
114	Global properties of pseudospectral methods. Journal of Computational Physics, 1989, 81, 239-276.	3.8	56
115	Improving the accuracy of central difference schemes. , 1989, , 586-591.		17
116	Long time asymptotics of a system for plasma diffusion. Transport Theory and Statistical Physics, 1987, 16, 377-391.	0.4	0
117	Artificial dissipation and central difference schemes for the Euler and Navier-Stokes equations. , 1987, , .		107
118	Preconditioned methods for solving the incompressible and low speed compressible equations. Journal of Computational Physics, 1987, 72, 277-298.	3.8	697
119	Wave Phenomena in a High Reynolds Number Compressible Boundary Layer. , 1987, , 188-205.		1
120	Application of Runge-Kutta scheme for high-speed inviscid internal flows. , 1986, , .		8
121	Numerical simulation of boundary-layer excitation by surface heating/cooling. AIAA Journal, 1986, 24, 1095-1101.	2.6	26
122	Diffusion and transport of a fully collisional plasma. Physics of Fluids, 1986, 29, 741.	1.4	4
123	Pseudo-time algorithms for the Navier-Stokes equations. Applied Numerical Mathematics, 1986, 2, 321-333.	2.1	8
124	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
125	Accuracy of schemes with nonuniform meshes for compressible fluid flows. Applied Numerical Mathematics, 1986, 2, 529-550.	2.1	40
126	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

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127	Topics in spectral methods. , 1985, , 115-155.		10
128	On accuracy conditions for the numerical computation of waves. Journal of Computational Physics, 1985, 59, 396-404.	3.8	183
129	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
130	Ambipolar Diffusion in a Multi-Species Medium. Physica Scripta, 1985, 31, 207-209.	2.5	3
131	A multistage time-stepping scheme for the Navier-Stokes equations. , 1985, , .		75
132	Algorithms for the Euler and Navier-Stokes Equations for Supercomputers. , 1985, , 155-172.		2
133	Nonunique Solutions to the Transonic Potential Flow Equation. AIAA Journal, 1984, 22, 145-146.	2.6	15
134	PRECONDITIONED CONJUGATE GRADIENT METHODS FOR THE HELMHOLTZ EQUATION. , 1984, , 233-243.		4
135	Progress in computational physics. Computers and Fluids, 1983, 11, 121-144.	2.5	26
136	An iterative method for the Helmholtz equation. Journal of Computational Physics, 1983, 49, 443-457.	3.8	182
137	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
138	Outflow Boundary Conditions for Fluid Dynamics. SIAM Journal on Scientific and Statistical Computing, 1982, 3, 250-259.	1.5	26
139	Boundary Conditions for the Numerical Solution of Elliptic Equations in Exterior Regions. SIAM Journal on Applied Mathematics, 1982, 42, 430-451.	1.8	527
140	Far field boundary conditions for compressible flows. Journal of Computational Physics, 1982, 48, 182-199.	3.8	230
141	Stability of pseudospectral and finite-difference methods for variable coefficient problems. Mathematics of Computation, 1981, 37, 293-305.	2.1	25
142	Implicit schemes and ?? decompositions. Mathematics of Computation, 1981, 37, 385-397.	2.1	10
143	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
144	Implicit Schemes and LU Decompositions. Mathematics of Computation, 1981, 37, 385.	2.1	213

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145	Numerical solution of the Euler equations by finite volume methods using Runge Kutta time stepping schemes. , 1981, , .		1,739
146	Stability of Pseudospectral and Finite-Difference Methods for Variable Coefficient Problems. Mathematics of Computation, 1981, 37, 293.	2.1	1
147	On Time Discretizations for Spectral Methods. Studies in Applied Mathematics, 1980, 63, 68-86.	2.4	16
148	Radiation boundary conditions for wave-like equations. Communications on Pure and Applied Mathematics, 1980, 33, 707-725.	3.1	870
149	On the practical use of high-order methods for hyperbolic systems. Journal of Computational Physics, 1980, 35, 319-340.	3.8	44
150	Boundary conditions for multistep finite-difference methods for time-dependent equations. Journal of Computational Physics, 1978, 26, 181-196.	3.8	37
151	On acceleration of MacCormack's scheme. Journal of Computational Physics, 1978, 26, 252-256.	3.8	1
152	Extrapolation methods for dynamic partial differential equations. Numerische Mathematik, 1978, 29, 269-285.	1.9	1
153	Composite Methods for Hyperbolic Equations. SIAM Journal on Numerical Analysis, 1977, 14, 744-759.	2.3	8
154	Symmetric hyperbolic difference schemes and matrix problems. Linear Algebra and Its Applications, 1977, 16, 109-129.	0.9	17
155	Multidimensional difference schemes with fourth-order accuracy. Journal of Computational Physics, 1976, 21, 85-113.	3.8	13
156	Dissipative two-four methods for time-dependent problems. Mathematics of Computation, 1976, 30, 703-723.	2.1	244
157	Dissipative Two-Four Methods for Time-Dependent Problems. Mathematics of Computation, 1976, 30, 703.	2.1	12
158	Difference Schemes with Fourth Order Accuracy for Hyperbolic Equations. SIAM Journal on Applied Mathematics, 1975, 29, 329-351.	1.8	27
159	Phase error and stability of second order methods for hyperbolic problems. II. Journal of Computational Physics, 1974, 15, 251-265.	3.8	12
160	Phase error and stability of second order methods for hyperbolic problems. I. Journal of Computational Physics, 1974, 15, 226-250.	3.8	38
161	Symmetrization of the fluid dynamic matrices with applications. Mathematics of Computation, 1973, 27, 729-729.	2.1	26
162	Symmetrization of the Fluid Dynamic Matrices with Applications. Mathematics of Computation, 1973, 27, 729.	2.1	3

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163	Fourth order method for Maxwell equations on a staggered mesh. , 0, , .		12