

Howard C Elman

List of Publications by Year in descending order

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85
papers

4,091
citations

159358

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114278

63
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89
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89
docs citations

89
times ranked

1483
citing authors

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 1 | Variational Iterative Methods for Nonsymmetric Systems of Linear Equations. <i>SIAM Journal on Numerical Analysis</i> , 1983, 20, 345-357. | 1.1 | 745 |
| 2 | Inexact and Preconditioned Uzawa Algorithms for Saddle Point Problems. <i>SIAM Journal on Numerical Analysis</i> , 1994, 31, 1645-1661. | 1.1 | 411 |
| 3 | Algorithm 866. <i>ACM Transactions on Mathematical Software</i> , 2007, 33, 14. | 1.6 | 211 |
| 4 | Preconditioning for the Steady-State Navier–Stokes Equations with Low Viscosity. <i>SIAM Journal of Scientific Computing</i> , 1999, 20, 1299-1316. | 1.3 | 186 |
| 5 | Fast Nonsymmetric Iterations and Preconditioning for Navier–Stokes Equations. <i>SIAM Journal of Scientific Computing</i> , 1996, 17, 33-46. | 1.3 | 183 |
| 6 | Performance and analysis of saddle point preconditioners for the discrete steady-state Navier-Stokes equations. <i>Numerische Mathematik</i> , 2002, 90, 665-688. | 0.9 | 166 |
| 7 | A Multigrid Method Enhanced by Krylov Subspace Iteration for Discrete Helmholtz Equations. <i>SIAM Journal of Scientific Computing</i> , 2001, 23, 1291-1315. | 1.3 | 164 |
| 8 | Efficient preconditioning of the linearized Navier–Stokes equations for incompressible flow. <i>Journal of Computational and Applied Mathematics</i> , 2001, 128, 261-279. | 1.1 | 145 |
| 9 | Block Preconditioners Based on Approximate Commutators. <i>SIAM Journal of Scientific Computing</i> , 2006, 27, 1651-1668. | 1.3 | 132 |
| 10 | A taxonomy and comparison of parallel block multi-level preconditioners for the incompressible Navier–Stokes equations. <i>Journal of Computational Physics</i> , 2008, 227, 1790-1808. | 1.9 | 122 |
| 11 | Preconditioners for saddle point problems arising in computational fluid dynamics. <i>Applied Numerical Mathematics</i> , 2002, 43, 75-89. | 1.2 | 85 |
| 12 | IFISS: A Computational Laboratory for Investigating Incompressible Flow Problems. <i>SIAM Review</i> , 2014, 56, 261-273. | 4.2 | 79 |
| 13 | Fourier Analysis of Iterative Methods for Elliptic pr. <i>SIAM Review</i> , 1989, 31, 20-49. | 4.2 | 74 |
| 14 | Preconditioning by Fast Direct Methods for Nonself-Adjoint Nonseparable Elliptic Equations. <i>SIAM Journal on Numerical Analysis</i> , 1986, 23, 44-57. | 1.1 | 63 |
| 15 | MULTIGRID AND KRYLOV SUBSPACE METHODS FOR THE DISCRETE STOKES EQUATIONS. <i>International Journal for Numerical Methods in Fluids</i> , 1996, 22, 755-770. | 0.9 | 63 |
| 16 | A stability analysis of incomplete LU factorizations. <i>Mathematics of Computation</i> , 1986, 47, 191-191. | 1.1 | 61 |
| 17 | A Hybrid Chebyshev Krylov Subspace Algorithm for Solving Nonsymmetric Systems of Linear Equations. <i>SIAM Journal on Scientific and Statistical Computing</i> , 1986, 7, 840-855. | 1.5 | 60 |
| 18 | Iterative methods for cyclically reduced nonselfadjoint linear systems. <i>Mathematics of Computation</i> , 1990, 54, 671-671. | 1.1 | 55 |

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|----|---|-----|-----------|
| 19 | Efficient iterative algorithms for the stochastic finite element method with application to acoustic scattering. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2005, 194, 1037-1055. | 3.4 | 55 |
| 20 | ASSESSMENT OF COLLOCATION AND GALERKIN APPROACHES TO LINEAR DIFFUSION EQUATIONS WITH RANDOM DATA. , 2011, 1, 19-33. | | 54 |
| 21 | A parallel block multi-level preconditioner for the 3D incompressible Navier–Stokes equations. <i>Journal of Computational Physics</i> , 2003, 187, 504-523. | 1.9 | 49 |
| 22 | Reduced Basis Collocation Methods for Partial Differential Equations with Random Coefficients. <i>SIAM-ASA Journal on Uncertainty Quantification</i> , 2013, 1, 192-217. | 1.1 | 44 |
| 23 | A Stability Analysis of Incomplete LU Factorizations. <i>Mathematics of Computation</i> , 1986, 47, 191. | 1.1 | 43 |
| 24 | Relaxed and stabilized incomplete factorizations for non-self-adjoint linear systems. <i>BIT Numerical Mathematics</i> , 1989, 29, 890-915. | 1.0 | 42 |
| 25 | Least Squares Preconditioners for Stabilized Discretizations of the Navier–Stokes Equations. <i>SIAM Journal of Scientific Computing</i> , 2008, 30, 290-311. | 1.3 | 40 |
| 26 | Ordering techniques for the preconditioned conjugate gradient method on parallel computers. <i>Computer Physics Communications</i> , 1989, 53, 253-269. | 3.0 | 39 |
| 27 | Line Iterative Methods for Cyclically Reduced Discrete Convection-Diffusion Problems. <i>SIAM Journal on Scientific and Statistical Computing</i> , 1992, 13, 339-363. | 1.5 | 33 |
| 28 | Efficient Iterative Solution of the Three-Dimensional Helmholtz Equation. <i>Journal of Computational Physics</i> , 1998, 142, 163-181. | 1.9 | 33 |
| 29 | Complete stagnation of gmres. <i>Linear Algebra and Its Applications</i> , 2003, 367, 165-183. | 0.4 | 33 |
| 30 | Efficient Iterative Solvers for Stochastic Galerkin Discretizations of Log-Transformed Random Diffusion Problems. <i>SIAM Journal of Scientific Computing</i> , 2012, 34, A659-A682. | 1.3 | 31 |
| 31 | Block Preconditioners for Stable Mixed Nodal and Edge finite element Representations of Incompressible Resistive MHD. <i>SIAM Journal of Scientific Computing</i> , 2016, 38, B1009-B1031. | 1.3 | 31 |
| 32 | Modified streamline diffusion schemes for convection-diffusion problems. <i>Computer Methods in Applied Mechanics and Engineering</i> , 1999, 174, 137-151. | 3.4 | 30 |
| 33 | A Block Preconditioner for an Exact Penalty Formulation for Stationary MHD. <i>SIAM Journal of Scientific Computing</i> , 2014, 36, B930-B951. | 1.3 | 30 |
| 34 | Iterative Methods for Cyclically Reduced Non-Self-Adjoint Linear Systems. II. <i>Mathematics of Computation</i> , 1991, 56, 215. | 1.1 | 28 |
| 35 | Fast iterative solvers for buoyancy driven flow problems. <i>Journal of Computational Physics</i> , 2011, 230, 3900-3914. | 1.9 | 26 |
| 36 | Ordering Effects on Relaxation Methods Applied to the Discrete Convection-Diffusion Equation. <i>The IMA Volumes in Mathematics and Its Applications</i> , 1994, , 45-57. | 0.5 | 24 |

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 37 | An Analysis of Smoothing Effects of Upwinding Strategies for the Convection-Diffusion Equation. SIAM Journal on Numerical Analysis, 2002, 40, 254-281. | 1.1 | 21 |
| 38 | Fast inexact subspace iteration for generalized eigenvalue problems with spectral transformation. Linear Algebra and Its Applications, 2011, 435, 601-622. | 0.4 | 21 |
| 39 | Eigenanalysis of some preconditioned Helmholtz problems. Numerische Mathematik, 1999, 83, 231-257. | 0.9 | 20 |
| 40 | Ordering Effects on Relaxation Methods Applied to the Discrete One-Dimensional Convection-Diffusion Equation. SIAM Journal on Numerical Analysis, 1993, 30, 1268-1290. | 1.1 | 19 |
| 41 | Analysis and Comparison of Geometric and Algebraic Multigrid for Convection-Diffusion Equations. SIAM Journal of Scientific Computing, 2006, 28, 2208-2228. | 1.3 | 19 |
| 42 | Convergence Analysis of Iterative Solvers in Inexact Rayleigh Quotient Iteration. SIAM Journal on Matrix Analysis and Applications, 2010, 31, 877-899. | 0.7 | 19 |
| 43 | Lyapunov Inverse Iteration for Identifying Hopf Bifurcations in Models of Incompressible Flow. SIAM Journal of Scientific Computing, 2012, 34, A1584-A1606. | 1.3 | 19 |
| 44 | Stochastic Galerkin methods for the steady-state Navier-Stokes equations. Journal of Computational Physics, 2016, 316, 435-452. | 1.9 | 19 |
| 45 | A note on conjugate gradient convergence. Numerische Mathematik, 1997, 76, 209-230. | 0.9 | 17 |
| 46 | Block-Preconditioned Conjugate-Gradient-Like Methods for Numerical Reservoir Simulation. SPE Reservoir Engineering, 1988, 3, 307-312. | 0.5 | 16 |
| 47 | A Preconditioned Low-Rank Projection Method with a Rank-Reduction Scheme for Stochastic Partial Differential Equations. SIAM Journal of Scientific Computing, 2017, 39, S828-S850. | 1.3 | 16 |
| 48 | $H(\text{div})$ preconditioning for a mixed finite element formulation of the diffusion problem with random data. Mathematics of Computation, 2009, 79, 733-760. | 1.1 | 16 |
| 49 | Block preconditioners for the discrete incompressible Navier-Stokes equations. International Journal for Numerical Methods in Fluids, 2002, 40, 333-344. | 0.9 | 14 |
| 50 | Algebraic Analysis of the Hierarchical Basis Preconditioner. SIAM Journal on Matrix Analysis and Applications, 1995, 16, 192-206. | 0.7 | 13 |
| 51 | Fast Inexact Implicitly Restarted Arnoldi Method for Generalized Eigenvalue Problems with Spectral Transformation. SIAM Journal on Matrix Analysis and Applications, 2012, 33, 433-459. | 0.7 | 13 |
| 52 | A finite element model for protein transport in vivo. BioMedical Engineering OnLine, 2007, 6, 24. | 1.3 | 12 |
| 53 | The (New) Yale Sparse Matrix Package The work presented in this paper was supported in part by the Office of Naval Research under contract N00014-82-K-0184 and by the National Science Foundation under grant MCS-81-04874.. , 1984, , 45-52. | | 12 |
| 54 | Approximate Schur Complement Preconditioners on Serial and Parallel Computers. SIAM Journal on Scientific and Statistical Computing, 1989, 10, 581-605. | 1.5 | 10 |

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 55 | Low-Rank Solution Methods for Stochastic Eigenvalue Problems. SIAM Journal of Scientific Computing, 2019, 41, A2657-A2680. | 1.3 | 10 |
| 56 | Iterative Methods for Cyclically Reduced Non-Self-Adjoint Linear Systems. Mathematics of Computation, 1990, 54, 671. | 1.1 | 9 |
| 57 | Lyapunov Inverse Iteration for Computing a Few Rightmost Eigenvalues of Large Generalized Eigenvalue Problems. SIAM Journal on Matrix Analysis and Applications, 2013, 34, 1685-1707. | 0.7 | 9 |
| 58 | Inverse Subspace Iteration for Spectral Stochastic Finite Element Methods. SIAM-ASA Journal on Uncertainty Quantification, 2016, 4, 163-189. | 1.1 | 9 |
| 59 | A Low-Rank Multigrid Method for the Stochastic Steady-State Diffusion Problem. SIAM Journal on Matrix Analysis and Applications, 2018, 39, 492-509. | 0.7 | 9 |
| 60 | A stochastic approach to uncertainty in the equations of MHD kinematics. Journal of Computational Physics, 2015, 284, 334-350. | 1.9 | 8 |
| 61 | A Low-Rank Solver for the Navier–Stokes Equations with Uncertain Viscosity. SIAM-ASA Journal on Uncertainty Quantification, 2019, 7, 1275-1300. | 1.1 | 8 |
| 62 | Perturbation of Eigenvalues of Preconditioned Navier–Stokes Operators. SIAM Journal on Matrix Analysis and Applications, 1997, 18, 733-751. | 0.7 | 7 |
| 63 | Fast iterative solver for convection–diffusion systems with spectral elements. Numerical Methods for Partial Differential Equations, 2011, 27, 231-254. | 2.0 | 6 |
| 64 | Stochastic collocation with kernel density estimation. Computer Methods in Applied Mechanics and Engineering, 2012, 245-246, 36-46. | 3.4 | 6 |
| 65 | ITERATIVE METHODS FOR NON-SELF-ADJOINT ELLIPTIC PROBLEMS. , 1984, , 271-283. | | 6 |
| 66 | Fourier Analysis of Multigrid for a Model Two-Dimensional Convection-Diffusion Equation. BIT Numerical Mathematics, 2006, 46, 283-306. | 1.0 | 4 |
| 67 | Fast solvers for models of ICEO microfluidic flows. International Journal for Numerical Methods in Fluids, 2011, 65, 383-404. | 0.9 | 4 |
| 68 | Stochastic Least-Squares Petrov–Galerkin Method for Parameterized Linear Systems. SIAM-ASA Journal on Uncertainty Quantification, 2018, 6, 374-396. | 1.1 | 4 |
| 69 | Efficient preconditioning of the linearized Navier–Stokes equations for incompressible flow. , 2001, , 261-279. | | 4 |
| 70 | A Non-Self-Adjoint Quadratic Eigenvalue Problem Describing a Fluid-Solid Interaction Part II: Analysis of Convergence. Communications on Pure and Applied Analysis, 2009, 8, 143-160. | 0.4 | 4 |
| 71 | On the convergence of line iterative methods for cyclically reduced non-symmetrizable linear systems. Numerische Mathematik, 1994, 67, 177-190. | 0.9 | 3 |
| 72 | Collocation Methods for Exploring Perturbations in Linear Stability Analysis. SIAM Journal of Scientific Computing, 2018, 40, A2667-A2693. | 1.3 | 3 |

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|----|---|-----|-----------|
| 73 | Use of linear algebra kernels to build an efficient finite element solver. <i>Parallel Computing</i> , 1995, 21, 161-173. | 1.3 | 2 |
| 74 | Solution Algorithms for Stochastic Galerkin Discretizations of Differential Equations with Random Data. , 2015, , 1-16. | | 2 |
| 75 | A low-rank solver for the stochastic unsteady Navier–Stokes problem. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 364, 112948. | 3.4 | 2 |
| 76 | Some observations on multigrid convergence for convection–diffusion equations. <i>Computing and Visualization in Science</i> , 2007, 10, 43-56. | 1.2 | 1 |
| 77 | Efficient iterative algorithms for linear stability analysis of incompressible flows. <i>IMA Journal of Numerical Analysis</i> , 0, , drv003. | 1.5 | 1 |
| 78 | Block Iterative Methods for Cyclically Reduced Non-Self-Adjoint Elliptic Problems. , 1990, , 91-105. | | 1 |
| 79 | Iterative methods for cyclically reduced nonselfadjoint linear systems. II. <i>Mathematics of Computation</i> , 1991, 56, 215-242. | 1.1 | 0 |
| 80 | Introduction to the Special Issue on Iterative Methods for Solving Systems of Algebraic Equations. <i>SIAM Journal of Scientific Computing</i> , 1998, 19, vii-vii. | 1.3 | 0 |
| 81 | Special Issue on Iterative Methods for Solving Systems of Algebraic Equations. <i>SIAM Journal of Scientific Computing</i> , 2000, 21, vii-vii. | 1.3 | 0 |
| 82 | Special Section: 2010 Copper Mountain Conference. <i>SIAM Journal of Scientific Computing</i> , 2011, 33, 2685-2685. | 1.3 | 0 |
| 83 | Alternating Line Multigrid for the Two Dimensional Convection-Diffusion Equation. <i>SSRN Electronic Journal</i> , 0, , . | 0.4 | 0 |
| 84 | Solution Algorithms for Stochastic Galerkin Discretizations of Differential Equations with Random Data. , 2017, , 601-616. | | 0 |
| 85 | Enhanced alternating energy minimization methods for stochastic galerkin matrix equations. <i>BIT Numerical Mathematics</i> , 0, , 1. | 1.0 | 0 |