

# William W Hager

## List of Publications by Year in descending order

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106  
papers

7,242  
citations

94415

37  
h-index

56717

83  
g-index

107  
all docs

107  
docs citations

107  
times ranked

3839  
citing authors

#	ARTICLE	IF	CITATIONS
1	A New Conjugate Gradient Method with Guaranteed Descent and an Efficient Line Search. SIAM Journal on Optimization, 2005, 16, 170-192.	2.0	810
2	Updating the Inverse of a Matrix. SIAM Review, 1989, 31, 221-239.	8.4	775
3	A unified framework for the numerical solution of optimal control problems using pseudospectral methods. Automatica, 2010, 46, 1843-1851.	5.0	556
4	A Nonmonotone Line Search Technique and Its Application to Unconstrained Optimization. SIAM Journal on Optimization, 2004, 14, 1043-1056.	2.0	449
5	An adaptive pseudospectral method for solving optimal control problems. Optimal Control Applications and Methods, 2011, 32, 476-502.	2.1	343
6	Runge-Kutta methods in optimal control and the transformed adjoint system. Numerische Mathematik, 2000, 87, 247-282.	1.9	341
7	Direct trajectory optimization and costate estimation of finite-horizon and infinite-horizon optimal control problems using a Radau pseudospectral method. Computational Optimization and Applications, 2011, 49, 335-358.	1.6	293
8	Pseudospectral methods for solving infinite-horizon optimal control problems. Automatica, 2011, 47, 829-837.	5.0	258
9	A New Active Set Algorithm for Box Constrained Optimization. SIAM Journal on Optimization, 2006, 17, 526-557.	2.0	197
10	Direct Trajectory Optimization Using a Variable Low-Order Adaptive Pseudospectral Method. Journal of Spacecraft and Rockets, 2011, 48, 433-445.	1.9	193
11	The cyclic Barzilai-Borwein method for unconstrained optimization. IMA Journal of Numerical Analysis, 2006, 26, 604-627.	2.9	184
12	A mesh refinement method for optimal control. Optimal Control Applications and Methods, 2015, 36, 398-421.	2.1	144
13	Second-Order Runge-Kutta Approximations in Control Constrained Optimal Control. SIAM Journal on Numerical Analysis, 2000, 38, 202-226.	2.3	143
14	Lipschitzian Stability in Nonlinear Control and Optimization. SIAM Journal on Control and Optimization, 1993, 31, 569-603.	2.1	120
15	The geometric mean decomposition. Linear Algebra and Its Applications, 2005, 396, 373-384.	0.9	116
16	Minimizing a Quadratic Over a Sphere. SIAM Journal on Optimization, 2001, 12, 188-208.	2.0	110
17	The Euler approximation in state constrained optimal control. Mathematics of Computation, 2000, 70, 173-204.	2.1	103
18	Adaptive mesh refinement method for optimal control using nonsmoothness detection and mesh size reduction. Journal of the Franklin Institute, 2015, 352, 4081-4106.	3.4	101

#	ARTICLE	IF	CITATIONS
19	Modifying a Sparse Cholesky Factorization. <i>SIAM Journal on Matrix Analysis and Applications</i> , 1999, 20, 606-627.	1.4	94
20	Training Signal Design for Estimation of Correlated MIMO Channels With Colored Interference. <i>IEEE Transactions on Signal Processing</i> , 2007, 55, 1486-1497.	5.3	89
21	The Limited Memory Conjugate Gradient Method. <i>SIAM Journal on Optimization</i> , 2013, 23, 2150-2168.	2.0	81
22	Multiplier Methods for Nonlinear Optimal Control. <i>SIAM Journal on Numerical Analysis</i> , 1990, 27, 1061-1080.	2.3	76
23	Implicit Functions, Lipschitz Maps, and Stability in Optimization. <i>Mathematics of Operations Research</i> , 1994, 19, 753-768.	1.3	75
24	Stabilized Sequential Quadratic Programming. <i>Computational Optimization and Applications</i> , 1999, 12, 253-273.	1.6	71
25	Rates of Convergence for Discrete Approximations to Unconstrained Control Problems. <i>SIAM Journal on Numerical Analysis</i> , 1976, 13, 449-472.	2.3	69
26	Multiple-Rank Modifications of a Sparse Cholesky Factorization. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2001, 22, 997-1013.	1.4	68
27	Row Modifications of a Sparse Cholesky Factorization. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2005, 26, 621-639.	1.4	65
28	Stability in the presence of degeneracy and error estimation. <i>Mathematical Programming</i> , 1999, 85, 181-192.	2.4	61
29	An efficient gradient method using the Yuan steplength. <i>Computational Optimization and Applications</i> , 2014, 59, 541-563.	1.6	60
30	Adaptive Mesh Refinement Method for Optimal Control Using Decay Rates of Legendre Polynomial Coefficients. <i>IEEE Transactions on Control Systems Technology</i> , 2018, 26, 1475-1483.	5.2	57
31	Bregman operator splitting with variable stepsize for total variation image reconstruction. <i>Computational Optimization and Applications</i> , 2013, 54, 317-342.	1.6	50
32	Fast Algorithms for Image Reconstruction with Application to Partially Parallel MR Imaging. <i>SIAM Journal on Imaging Sciences</i> , 2012, 5, 90-118.	2.2	48
33	Dual Approximations in Optimal Control. <i>SIAM Journal on Control and Optimization</i> , 1984, 22, 423-465.	2.1	47
34	Convergence Rate for a Gauss Collocation Method Applied to Unconstrained Optimal Control. <i>Journal of Optimization Theory and Applications</i> , 2016, 169, 801-824.	1.5	45
35	Graph Partitioning and Continuous Quadratic Programming. <i>SIAM Journal on Discrete Mathematics</i> , 1999, 12, 500-523.	0.8	42
36	Costate approximation in optimal control using integral Gaussian quadrature orthogonal collocation methods. <i>Optimal Control Applications and Methods</i> , 2015, 36, 381-397.	2.1	42

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37	The Dual Active Set Algorithm and Its Application to Linear Programming. Computational Optimization and Applications, 2002, 21, 263-275.	1.6	40
38	An affine-scaling interior-point CBB method for box-constrained optimization. Mathematical Programming, 2009, 119, 1-32.	2.4	36
39	Gradient-Based Methods for Sparse Recovery. SIAM Journal on Imaging Sciences, 2011, 4, 146-165.	2.2	36
40	The Ritz-Treffitz Method for State and Control Constrained Optimal Control Problems. SIAM Journal on Numerical Analysis, 1975, 12, 854-867.	2.3	35
41	A new approach to Lipschitz continuity in state constrained optimal control. Systems and Control Letters, 1998, 35, 137-143.	2.3	35
42	An exact algorithm for graph partitioning. Mathematical Programming, 2013, 137, 531-556.	2.4	31
43	An inexact accelerated stochastic ADMM for separable convex optimization. Computational Optimization and Applications, 2022, 81, 479-518.	1.6	29
44	An Alternating Direction Approximate Newton Algorithm for Ill-Conditioned Inverse Problems with Application to Parallel MRI. Journal of the Operations Research Society of China, 2015, 3, 139-162.	1.4	27
45	Self-adaptive inexact proximal point methods. Computational Optimization and Applications, 2008, 39, 161-181.	1.6	26
46	Application of the dual active set algorithm to quadratic network optimization. Computational Optimization and Applications, 1993, 1, 349-373.	1.6	25
47	Iterative Methods for Nearly Singular Linear Systems. SIAM Journal of Scientific Computing, 2000, 22, 747-766.	2.8	25
48	An hp mesh refinement method for optimal control using discontinuity detection and mesh size reduction. , 2014, , .		21
49	Convergence Rate for a Gauss Collocation Method Applied to Constrained Optimal Control. SIAM Journal on Control and Optimization, 2018, 56, 1386-1411.	2.1	19
50	An Affine-Scaling Interior-Point Method for Continuous Knapsack Constraints with Application to Support Vector Machines. SIAM Journal on Optimization, 2011, 21, 361-390.	2.0	18
51	Minimizing the Profile of a Symmetric Matrix. SIAM Journal of Scientific Computing, 2002, 23, 1799-1816.	2.8	17
52	Convergence rate for a Radau hp collocation method applied to constrained optimal control. Computational Optimization and Applications, 2019, 74, 275-314.	1.6	17
53	Approximations to the Multiplier Method. SIAM Journal on Numerical Analysis, 1985, 22, 16-46.	2.3	16
54	Continuous quadratic programming formulations of optimization problems on graphs. European Journal of Operational Research, 2015, 240, 328-337.	5.7	16

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55	An $O(1/k)$ Convergence Rate for the Variable Stepsize Bregman Operator Splitting Algorithm. SIAM Journal on Numerical Analysis, 2016, 54, 1535-1556.	2.3	16
56	Reflection and refraction of elastic waves for stratified materials. Wave Motion, 1988, 10, 333-348.	2.0	15
57	The Gradient Projection Method with Exact Line Search. Journal of Global Optimization, 2004, 30, 103-118.	1.8	15
58	Analysis of charge transport during lightning using balloon-borne electric field sensors and Lightning Mapping Array. Journal of Geophysical Research, 2007, 112, .	3.3	15
59	An active set algorithm for nonlinear optimization with polyhedral constraints. Science China Mathematics, 2016, 59, 1525-1542.	1.7	15
60	Simulations of Electric Fields within a Thunderstorm. Journals of the Atmospheric Sciences, 1989, 46, 3542-3558.	1.7	14
61	A differential equation model for functional mapping of a virus-cell dynamic system. Journal of Mathematical Biology, 2010, 61, 1-15.	1.9	14
62	Convergence of a Gauss Pseudospectral Method for Optimal Control. , 2012, , .		14
63	Inexact alternating direction methods of multipliers for separable convex optimization. Computational Optimization and Applications, 2019, 73, 201-235.	1.6	14
64	The Switch Point Algorithm. SIAM Journal on Control and Optimization, 2021, 59, 2570-2593.	2.1	14
65	A generalized eigenproblem for the Laplacian which arises in lightning. Journal of Mathematical Analysis and Applications, 2008, 341, 1028-1041.	1.0	13
66	A multilevel bilinear programming algorithm for the vertex separator problem. Computational Optimization and Applications, 2018, 69, 189-223.	1.6	13
67	Computational Method for Optimal Guidance and Control Using Adaptive Gaussian Quadrature Collocation. Journal of Guidance, Control, and Dynamics, 2019, 42, 2026-2041.	2.8	13
68	An Ellipsoidal Branch and Bound Algorithm for Global Optimization. SIAM Journal on Optimization, 2009, 20, 740-758.	2.0	12
69	Bounds for integration matrices that arise in Gauss and Radau collocation. Computational Optimization and Applications, 2019, 74, 259-273.	1.6	12
70	Gauss Pseudospectral Method for Solving Infinite-Horizon Optimal Control Problems. , 2010, , .		11
71	Charge rearrangement by sprites over a north Texas mesoscale convective system. Journal of Geophysical Research, 2012, 117, .	3.3	11
72	An Efficient Hybrid Algorithm for the Separable Convex Quadratic Knapsack Problem. ACM Transactions on Mathematical Software, 2016, 42, 1-25.	2.9	10

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73	Projection algorithms for nonconvex minimization with application to sparse principal component analysis. <i>Journal of Global Optimization</i> , 2016, 65, 657-676.	1.8	10
74	The evolution and discharge of electric fields within a thunderstorm. <i>Journal of Computational Physics</i> , 1989, 82, 193-217.	3.8	9
75	Projection onto a Polyhedron that Exploits Sparsity. <i>SIAM Journal on Optimization</i> , 2016, 26, 1773-1798.	2.0	9
76	Mesh refinement method for solving optimal control problems with nonsmooth solutions using jump function approximations. <i>Optimal Control Applications and Methods</i> , 2021, 42, 1119-1140.	2.1	9
77	A sparse proximal implementation of the LP dual active set algorithm. <i>Mathematical Programming</i> , 2007, 112, 275-301.	2.4	8
78	Electric Field Reversal in Sprite Electric Field Signature. <i>Monthly Weather Review</i> , 2013, 141, 1731-1735.	1.4	8
79	Mesh Refinement Method for Solving Bang-Bang Optimal Control Problems Using Direct Collocation. , 2020, , .		8
80	A Discrete Model for the Lightning Discharge. <i>Journal of Computational Physics</i> , 1998, 144, 137-150.	3.8	7
81	Multiset graph partitioning. <i>Mathematical Methods of Operations Research</i> , 2002, 55, 1-10.	1.0	7
82	Three-dimensional charge structure of a mountain thunderstorm. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	7
83	Free boundaries and finite elements in one dimension. <i>Mathematics of Computation</i> , 1975, 29, 1020-1020.	2.1	6
84	Partially parallel MR image reconstruction using sensitivity encoding. , 2012, , .		6
85	Lebesgue constants arising in a class of collocation methods. <i>IMA Journal of Numerical Analysis</i> , 0, , drw060.	2.9	6
86	An affine scaling method for optimization problems with polyhedral constraints. <i>Computational Optimization and Applications</i> , 2014, 59, 163-183.	1.6	5
87	Convergence rates for an inexact ADMM applied to separable convex optimization. <i>Computational Optimization and Applications</i> , 2020, 77, 729-754.	1.6	5
88	Perturbation in eigenvalues. <i>Linear Algebra and Its Applications</i> , 1982, 42, 39-55.	0.9	4
89	The Wave Annihilation Technique and the Design of Nonreflective Coatings. <i>SIAM Journal on Applied Mathematics</i> , 2000, 60, 1388-1424.	1.8	4
90	Optimization of generalized mean square error in signal processing and communication. <i>Linear Algebra and Its Applications</i> , 2006, 416, 815-834.	0.9	4

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91	Dual multilevel optimization. <i>Mathematical Programming</i> , 2007, 112, 403-425.	2.4	4
92	Error estimation in nonlinear optimization. <i>Journal of Global Optimization</i> , 2014, 59, 327-341.	1.8	4
93	Modified Legendre-Gauss-Radau Collocation Method for Optimal Control Problems with Nonsmooth Solutions. <i>Journal of Optimization Theory and Applications</i> , 0, , 1.	1.5	4
94	Optimality conditions for maximizing a function over a polyhedron. <i>Mathematical Programming</i> , 2014, 145, 179-198.	2.4	3
95	Modified Radau Collocation method for Solving Optimal Control Problems with Nonsmooth Solutions Part I: Lavrentiev Phenomenon and the Search Space. , 2018, , .		3
96	Homogenization for degenerate equations of elasticity. <i>Asymptotic Analysis</i> , 1988, 1, 283-302.	0.5	2
97	An investigation of feasible descent algorithms for estimating the condition number of a matrix. <i>Top</i> , 2012, 20, 791-809.	1.6	2
98	Charge rearrangement deduced from nearby electric field measurements of an intracloud flash with K changes. <i>Journal of Geophysical Research D: Atmospheres</i> , 2013, 118, 10,313.	3.3	2
99	Mesh-Generation Method for Real-Time Optimal Control Using Adaptive Gaussian Quadrature Collocation. , 2018, , .		2
100	A pseudospectral method for optimal control based on collocation at the Gauss points. , 2018, , .		2
101	Modified Radau Collocation Method for Solving Optimal Control Problems with Nonsmooth Solutions Part II: Costate Estimation and the Transformed Adjoint System. , 2018, , .		2
102	Dual active sets and constrained optimization. <i>Annals of Operations Research</i> , 1993, 43, 217-228.	4.1	1
103	The Application of Eigenpair Stability to Block Diagonalization. <i>SIAM Journal on Numerical Analysis</i> , 1997, 34, 1255-1268.	2.3	1
104	Costate estimation of state-inequality path constrained optimal control problems using collocation at Legendre-Gauss-Radau points. , 2013, , .		1
105	Mesh Refinement Method for Optimal Control Problems with Discontinuous Control Profiles. , 2017, , .		1
106	A Preliminary Analysis of Mesh Refinement for Optimal Control Using Discontinuity Detection via Jump Function Approximations. , 2018, , .		0