Adrian Sandu

List of Publications by Year
in descending order

141	3,747	147726	168321
papers	citations	31 h-index	53 g-index

142	142	142	2664
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A unified formulation of splitting-based implicit time integration schemes. Journal of Computational Physics, 2022, 448, 110766.	1.9	3
2	Multifidelity Data Assimilation forÂPhysical Systems. , 2022, , 43-67.		2
3	Computation of Direct Sensitivities of Spatial Multibody Systems With Joint Friction. Journal of Computational and Nonlinear Dynamics, 2022, 17, .	0.7	4
4	Multifidelity Ensemble Kalman Filtering Using Surrogate Models Defined by Theory-Guided Autoencoders. Frontiers in Applied Mathematics and Statistics, 2022, 8, .	0.7	2
5	A Fast Time-Stepping Strategy for Dynamical Systems Equipped with a Surrogate Model. SIAM Journal of Scientific Computing, 2022, 44, A1405-A1427.	1.3	0
6	A stochastic covariance shrinkage approach to particle rejuvenation in the ensemble transform particle filter. Nonlinear Processes in Geophysics, 2022, 29, 241-253.	0.6	0
7	Subspace adaptivity in Rosenbrockâ€“Krylov methods for the time integration of initial value problems. Journal of Computational and Applied Mathematics, 2021, 385, 113188.	1.1	0
8	Partitioned exponential methods for coupled multiphysics systems. Applied Numerical Mathematics, 2021, 161, 178-207.	1.2	2
9	Multirate implicit Euler schemes for a class of differentialâ€“algebraic equations of index-1. Journal of Computational and Applied Mathematics, 2021, 387, 112499.	1.1	9
10	Alternating directions implicit integration in a general linear method framework. Journal of Computational and Applied Mathematics, 2021, 387, 112619.	1.1	2
11	A Multifidelity Ensemble Kalman Filter with Reduced Order Control Variates. SIAM Journal of Scientific Computing, 2021, 43, A1134-A1162.	1.3	20
12	Conservative High-Order Time Integration for Lagrangian Hydrodynamics. SIAM Journal of Scientific Computing, 2021, 43, A221-A241.	1.3	2
13	Implicit Multirate GARK Methods. Journal of Scientific Computing, 2021, 87, 1.	1.1	11
14	Linearly implicit GARK schemes. Applied Numerical Mathematics, 2021, 161, 286-310.	1.2	2
15	Biorthogonal Rosenbrock-Krylov time discretization methods. Applied Numerical Mathematics, 2020, 150, 233-251.	1.2	2
16	Convergence results for implicitâ€“explicit general linear methods. Applied Numerical Mathematics, 2020, 156, 242-264.	1.2	3
17	Coupled Multirate Infinitesimal GARK Schemes for Stiff Systems with Multiple Time Scales. SIAM Journal of Scientific Computing, 2020, 42, A1609-A1638.	1.3	13
18	Parallel Implicit-Explicit General Linear Methods. Communications on Applied Mathematics and Computation, 2020, , 1.	0.7	1

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19	Adjoint sensitivity analysis of hybrid multibody dynamical systems. Multibody System Dynamics, 2020, 49, 395-420.	1.7	9
20	Efficient implementation of partitioned stiff exponential Runge-Kutta methods. Applied Numerical Mathematics, 2020, 152, 141-158.	1.2	3
21	Modeling and sensitivity analysis methodology for hybrid dynamical system. Nonlinear Analysis: Hybrid Systems, 2019, 31, 19-40.	2.1	9
22	A Bayesian approach to multivariate adaptive localization in ensemble-based data assimilation with time-dependent extensions. Nonlinear Processes in Geophysics, 2019, 26, 109-122.	0.6	10
23	DATeS: a highly extensible data assimilation testing suite v1.0. Geoscientific Model Development, 2019, 12, 629-649.	1.3	6
24	Tuning Covariance Localization Using Machine Learning. Lecture Notes in Computer Science, 2019, , 199-212.	1.0	6
25	Design of High-Order Decoupled Multirate GARK Schemes. SIAM Journal of Scientific Computing, 2019, 41, A816-A847.	1.3	10
26	A Class of Multirate Infinitesimal GARK Methods. SIAM Journal on Numerical Analysis, 2019, 57, 2300-2327.	1.1	24
27	EPIRK-W and EPIRK-K Time Discretization Methods. Journal of Scientific Computing, 2019, 78, 167-201.	1.1	14
28	Efficient parallel implementation of DDDAS inference using an ensemble Kalman filter with shrinkage covariance matrix estimation. Cluster Computing, 2019, 22, 2211-2221.	3.5	11
29	A parallel implementation of the ensemble Kalman filter based on modified Cholesky decomposition. Journal of Computational Science, 2019, 36, 100654.	1.5	25
30	An Ensemble Kalman Filter Implementation Based on Modified Cholesky Decomposition for Inverse Covariance Matrix Estimation. SIAM Journal of Scientific Computing, 2018, 40, A867-A886.	1.3	29
31	Benchmarking of adjoint sensitivity-based optimization techniques using a vehicle ride case study. Mechanics Based Design of Structures and Machines, 2018, 46, 254-266.	3.4	6
32	Multivariate predictions of local reducedâ€orderâ€model errors and dimensions. International Journal for Numerical Methods in Engineering, 2018, 113, 512-533.	1.5	19
33	Cluster Sampling Filters for Non-Gaussian Data Assimilation. Atmosphere, 2018, 9, 213.	1.0	10
34	Efficient Formulation and Implementation of Data Assimilation Methods. Atmosphere, 2018, 9, 254.	1.0	0
35	Solving parameter estimation problems with discrete adjoint exponential integrators. Optimization Methods and Software, 2018, 33, 750-770.	1.6	3
36	A Hybrid Monteâ€Carlo sampling smoother for fourâ€dimensional data assimilation. International Journal for Numerical Methods in Fluids, 2017, 83, 90-112.	0.9	9

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37	Analytical Jacobian-vector products for the matrix-free time integration of partial differential equations. Journal of Computational and Applied Mathematics, 2017, 310, 213-223.	1.1	8
38	Efficient approximation of Sparse Jacobians for timeâ€implicit reduced order models. International Journal for Numerical Methods in Fluids, 2017, 83, 175-204.	0.9	9
39	The reducedâ€order hybrid Monte Carlo sampling smoother. International Journal for Numerical Methods in Fluids, 2017, 83, 28-51.	0.9	18
40	A numerical investigation of matrix-free implicit time-stepping methods for large CFD simulations. Computers and Fluids, 2017, 159, 53-63.	1.3	7
41	General linear methods and friends: Toward efficient solutions of multiphysics problems. AIP Conference Proceedings, 2017, , .	0.3	0
42	Robust Data Assimilation Using L_1 and Huber Norms. SIAM Journal of Scientific Computing, 2017, 39, B548-B570.	1.3	11
43	Rosenbrock methods with an explicit first stage. International Journal of Computer Mathematics, 2016, 93, 995-1010.	1.0	0
44	A time-parallel approach to strong-constraint four-dimensional variational data assimilation. Journal of Computational Physics, 2016, 313, 583-593.	1.9	21
45	Model reduction and inverse problems and data assimilation with geophysical applications. A special issue in honor of I. Michael Navon's 75th birthday. International Journal for Numerical Methods in Fluids, 2016, 82, 625-630.	0.9	3
46	Multirate generalized additive Runge Kutta methods. Numerische Mathematik, 2016, 133, 497-524.	0.9	44
47	High Order Implicit-explicit General Linear Methods with Optimized Stability Regions. SIAM Journal of Scientific Computing, 2016, 38, A1430-A1453.	1.3	21
48	A derivative-free trust region framework for variational data assimilation. Journal of Computational and Applied Mathematics, 2016, 293, 164-179.	1.1	16
49	Multirate GARK Schemes for Multiphysics Problems. Mathematics in Industry, 2016, , 115-121.	0.1	1
50	A Posteriori Error Estimates for the Solution of Variational Inverse Problems. SIAM-ASA Journal on Uncertainty Quantification, 2015, 3, 737-761.	1.1	13
51	Dynamic Response Optimization of Complex Multibody Systems in a Penalty Formulation Using Adjoint Sensitivity. Journal of Computational and Nonlinear Dynamics, 2015, 10, .	0.7	19
52	Ensemble Kalman filter implementations based on shrinkage covariance matrix estimation. Ocean Dynamics, 2015, 65, 1423-1439.	0.9	26
53	A Generalized-Structure Approach to Additive Runge–Kutta Methods. SIAM Journal on Numerical Analysis, 2015, 53, 17-42.	1.1	42
54	Direct and Adjoint Sensitivity Analysis of Ordinary Differential Equation Multibody Formulations. Journal of Computational and Nonlinear Dynamics, 2015, 10, .	0.7	37

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55	Differences Between Magnitudes and Health Impacts of BC Emissions Across the United States Using 12 km Scale Seasonal Source Apportionment. Environmental Science & Technology, 2015, 49, 4362-4371.	4.6	20
56	Application of approximate matrix factorization to high order linearly implicit Rungeâ€“Kutta methods. Journal of Computational and Applied Mathematics, 2015, 286, 196-210.	1.1	5
57	Parallel Solution of DDDAS Variational Inference Problems. Procedia Computer Science, 2015, 51, 2474-2482.	1.2	4
58	A Class Of Implicit-Explicit Two-Step Runge--Kutta Methods. SIAM Journal on Numerical Analysis, 2015, 53, 321-341.	1.1	31
59	Application of implicit-explicit general linear methods to reaction-diffusion problems. AIP Conference Proceedings, 2015, , .	0.3	1
60	An efficient implementation of the ensemble Kalman filter based on an iterative Shermanâ€“Morrison formula. Statistics and Computing, 2015, 25, 561-577.	0.8	24
61	A Framework to Analyze the Performance of Load Balancing Schemes for Ensembles of Stochastic Simulations. International Journal of Parallel Programming, 2015, 43, 597-630.	1.1	5
62	Construction of highly stable implicit-explicit general linear methods. , 2015, , .		3
63	MBSVT: Software for Modeling, Sensitivity Analysis, and Optimization of Multibody Systems at Virginia Tech. , 2014, , .		9
64	Comparison of POD reduced order strategies for the nonlinear 2D shallow water equations. International Journal for Numerical Methods in Fluids, 2014, 76, 497-521.	0.9	82
65	FATODE: A Library for Forward, Adjoint, and Tangent Linear Integration of ODEs. SIAM Journal of Scientific Computing, 2014, 36, C504-C523.	1.3	34
66	Spaceâ€“time adaptive solution of inverse problems with the discrete adjoint method. Journal of Computational Physics, 2014, 270, 21-39.	1.9	7
67	An adjoint-based scalable algorithm for time-parallel integration. Journal of Computational Science, 2014, 5, 76-84.	1.5	8
68	A new look at the chemical master equation. Numerical Algorithms, 2014, 65, 485-498.	1.1	4
69	Exponential-Krylov methods for ordinary differential equations. Journal of Computational Physics, 2014, 278, 31-46.	1.9	12
70	EXTRAPOLATED IMPLICITâ€“EXPLICIT RUNGEâ€“KUTTA METHODS. Mathematical Modelling and Analysis, 2014, 19, 18-43.	0.7	27
71	Partitioned and Implicitâ€“Explicit General Linear Methods for Ordinary Differential Equations. Journal of Scientific Computing, 2014, 61, 119-144.	1.1	44
72	Extrapolation-based implicit-explicit general linear methods. Numerical Algorithms, 2014, 65, 377-399.	1.1	36

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73	Sensitivity Analysis of Multibody Dynamic Systems Modeled by ODEs and DAEs. Computational Methods in Applied Sciences (Springer), 2014, , 1-32.	0.1	7
74	Rosenbrock–Krylov Methods for Large Systems of Differential Equations. SIAM Journal of Scientific Computing, 2014, 36, A1313-A1338.	1.3	29
75	An optimization framework to improve 4D-Var data assimilation system performance. Journal of Computational Physics, 2014, 275, 377-389.	1.9	17
76	Low-rank approximations for computing observation impact in 4D-Var data assimilation. Computers and Mathematics With Applications, 2014, 67, 2112-2126.	1.4	10
77	A Posteriori Error Estimates for DDDAS Inference Problems. Procedia Computer Science, 2014, 29, 1256-1265.	1.2	13
78	Motion Planning of Uncertain Ordinary Differential Equation Systems. Journal of Computational and Nonlinear Dynamics, 2014, 9, .	0.7	3
79	Extrapolated Multirate Methods for Differential Equations with Multiple Time Scales. Journal of Scientific Computing, 2013, 56, 28-44.	1.1	26
80	Efficient methods for computing observation impact in 4D-Var data assimilation. Computational Geosciences, 2013, 17, 975-990.	1.2	18
81	Dynamic Sensor Network Configuration in InfoSymbiotic Systems Using Model Singular Vectors. Procedia Computer Science, 2013, 18, 1909-1918.	1.2	5
82	A Highly Scalable Approach for Time Parallelization of Long Range Forecasts. , 2012, , .		1
83	Parametric Design Optimization of Uncertain Ordinary Differential Equation Systems. Journal of Mechanical Design, Transactions of the ASME, 2012, 134, .	1.7	5
84	An Effcient Implementation of the Ensemble Kalman Filter Based on Iterative Sherman Morrison Formula. Procedia Computer Science, 2012, 9, 1064-1072.	1.2	5
85	Second-order adjoints for solving PDE-constrained optimization problems. Optimization Methods and Software, 2012, 27, 625-653.	1.6	21
86	A Second-order Diagonally-Implicit-Explicit Multi-Stage Integration Method. Procedia Computer Science, 2012, 9, 1039-1046.	1.2	10
87	Variational chemical data assimilation with approximate adjoints. Computers and Geosciences, 2012, 40, 10-18.	2.0	7
88	Parametric Design Optimization of Uncertain Ordinary Differential Equation Systems. , 2011, , .		3
89	Chemical Mechanism Solvers in Air Quality Models. Atmosphere, 2011, 2, 510-532.	1.0	25
90	Chemical Data Assimilationâ€"An Overview. Atmosphere, 2011, 2, 426-463.	1.0	79

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91	Ensemble Methods for Dynamic Data Assimilation of Chemical Observations in Atmospheric Models. Journal of Algorithms and Computational Technology, 2011, 5, 667-692.	0.4	6
92	Continuous versus discrete advection adjoints in chemical data assimilation with CMAQ. Atmospheric Environment, 2011, 45, 4868-4881.	1.9	26
93	Scalable heterogeneous parallelism for atmospheric modeling and simulation. Journal of Supercomputing, 2011, 56, 300-327.	2.4	4
94	On the adaptive solution of spaceâ€“time inverse problems with the adjoint method. Procedia Computer Science, 2011, 4, 1771-1781.	1.2	3
95	Automatic Generation of Multicore Chemical Kernels. IEEE Transactions on Parallel and Distributed Systems, 2011, 22, 119-131.	4.0	14
96	A hybrid approach to estimating error covariances in variational data assimilation. Tellus, Series A: Dynamic Meteorology and Oceanography, 2010, 62, 288-297.	0.8	31
97	Forward, tangent linear, and adjoint Rungeâ€“Kutta methods for stiff chemical kinetic simulations. International Journal of Computer Mathematics, 2010, 87, 2458-2479.	1.0	13
98	Obtaining and using second order derivative information in the solution of large scale inverse problems. , 2010, , .		1
99	A Polynomial Chaos-Based Kalman Filter Approach for Parameter Estimation of Mechanical Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2010, 132, .	0.9	65
100	Extrapolated Implicit-Explicit Time Stepping. SIAM Journal of Scientific Computing, 2010, 31, 4452-4477.	1.3	39
101	On Extrapolated Multirate Methods. Mathematics in Industry, 2010, , 341-347.	0.1	4
102	Parameter estimation for mechanical systems via an explicit representation of uncertainty. Engineering Computations, 2009, 26, 541-569.	0.7	29
103	Vector stream processing for effective application of heterogeneous parallelism. , 2009, , .		2
104	Multirate Time Discretizations for Hyperbolic Partial Differential Equations. , 2009, , .		1
105	Regional NOx emission inversion through a four-dimensional variational approach using SCIAMACHY tropospheric NO2 column observations. Atmospheric Environment, 2009, 43, 5046-5055.	1.9	54
106	Multirate Explicit Adams Methods for Time Integration of Conservation Laws. Journal of Scientific Computing, 2009, 38, 229-249.	1.1	39
107	Efficient uncertainty quantification with the polynomial chaos method for stiff systems. Mathematics and Computers in Simulation, 2009, 79, 3278-3295.	2.4	32
108	Forward and adjoint sensitivity analysis with continuous explicit Rungeâ€“Kutta schemes. Applied Mathematics and Computation, 2009, 208, 328-346.	1.4	20

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109	Uncertainty quantification and apportionment in air quality models using the polynomial chaos method. Environmental Modelling and Software, 2009, 24, 917-925.	1.9	31
110	On the discrete adjoints of adaptive time stepping algorithms. Journal of Computational and Applied Mathematics, 2009, 233, 1005-1020.	1.1	17
111	Predicting air quality: Improvements through advanced methods to integrate models and measurements. Journal of Computational Physics, 2008, 227, 3540-3571.	1.9	134
112	Discrete second order adjoints in atmospheric chemical transport modeling. Journal of Computational Physics, 2008, 227, 5949-5983.	1.9	35
113	Modeling atmospheric chemistry and transport with dynamic adaptive resolution. Computational Geosciences, 2008, 12, 133-151.	1.2	24
114	On the properties of discrete adjoints of numerical methods for the advection equation. International Journal for Numerical Methods in Fluids, 2008, 56, 769-803.	0.9	21
115	Reverse Automatic Differentiation of Linear Multistep Methods. Lecture Notes in Computational Science and Engineering, 2008, , 1-12.	0.1	6
116	Predicting Air Quality: Current Status and Future Directions. NATO Security Through Science Series C: Environmental Security, 2008, , 481-495.	0.1	1
117	Numerical study of uncertainty quantification techniques for implicit stiff systems. , 2007, , .		5
118	The Adjoint of CMAQ. Environmental Science & Technology, 2007, 41, 7807-7817.	4.6	118
119	Four-dimensional data assimilation experiments with International Consortium for Atmospheric Research on Transport and Transformation ozone measurements. Journal of Geophysical Research, 2007, 112, .	3.3	66
120	Autoregressive models of background errors for chemical data assimilation. Journal of Geophysical Research, 2007, 112, .	3.3	40
121	Ensembleâ€based chemical data assimilation. I: General approach. Quarterly Journal of the Royal Meteorological Society, 2007, 133, 1229-1243.	1.0	69
122	Ensembleâ€based chemical data assimilation. II: Covariance localization. Quarterly Journal of the Royal Meteorological Society, 2007, 133, 1245-1256.	1.0	46
123	Assessment of ensemble-based chemical data assimilation in an idealized settingâ˜†. Atmospheric Environment, 2007, 41, 18-36.	1.9	45
124	Multirate Timestepping Methods for Hyperbolic Conservation Laws. Journal of Scientific Computing, 2007, 33, 239-278.	1.1	97
125	Chemical data assimilation of Transport and Chemical Evolution over the Pacific (TRACE-P) aircraft measurements. Journal of Geophysical Research, 2006, 111, .	3.3	55
126	Adjoint Sensitivity Analysis of Ozone Nonattainment over the Continental United States. Environmental Science & Technology, 2006, 40, 3855-3864.	4.6	57

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127	Singular Vector Analysis for Atmospheric Chemical Transport Models. Monthly Weather Review, 2006, 134, 2443-2465.	0.5	21
128	Modeling Multibody Systems with Uncertainties. Part I: Theoretical and Computational Aspects. Multibody System Dynamics, 2006, 15, 369-391.	1.7	144
129	Modeling multibody systems with uncertainties. Part II: Numerical applications. Multibody System Dynamics, 2006, 15, 241-262.	1.7	117
130	Piecewise Polynomial Solutions of Aerosol Dynamic Equation. Aerosol Science and Technology, 2006, 40, 261-273.	1.5	17
131	Forward, Tangent Linear, and Adjoint Runge-Kutta Methods in KPPâ€“2.2. Lecture Notes in Computer Science, 2006, , 120-127.	1.0	3
132	On the Properties of Runge-Kutta Discrete Adjoints. Lecture Notes in Computer Science, 2006, , 550-557.	1.0	25
133	Adjoint sensitivity analysis of regional air quality models. Journal of Computational Physics, 2005, 204, 222-252.	1.9	201
134	Three-dimensional simulations of inorganic aerosol distributions in east Asia during spring 2001. Journal of Geophysical Research, 2004, 109, .	3.3	80
135	Multiscale simulations of tropospheric chemistry in the eastern Pacific and on the U.S. West Coast during spring 2002. Journal of Geophysical Research, 2004, 109, .	3.3	30
136	Direct and adjoint sensitivity analysis of chemical kinetic systems with KPP: Part Iâ€”theory and software tools. Atmospheric Environment, 2003, 37, 5083-5096.	1.9	170
137	Direct and adjoint sensitivity analysis of chemical kinetic systems with KPP: IIâ€”numerical validation and applications. Atmospheric Environment, 2003, 37, 5097-5114.	1.9	80
138	A framework for the numerical treatment of aerosol dynamics. Applied Numerical Mathematics, 2003, 45, 475-497.	1.2	41
139	The kinetic preprocessor KPP-a software environment for solving chemical kinetics. Computers and Chemical Engineering, 2002, 26, 1567-1579.	2.0	343
140	Adjoint sensitivity index-3 augmented Lagrangian formulation with projections. Mechanics Based Design of Structures and Machines, 0, , 1-31.	3.4	7
141	Multirate linearly-implicit GARK schemes. BIT Numerical Mathematics, 0, , 1.	1.0	1