Zahari Zlatev

List of Publications by Year
in descending order

157 papers	2,368 citations	218677 26 h-index	276875 41 g-index
174 all docs	174 docs citations	174 times ranked	569 citing authors

#	Article	IF	Citations
1	Sensitivity Study of a Large-Scale Air Pollution Model by Using Optimized Latin Hyprecube Sampling. Studies in Computational Intelligence, 2022, , 371-387.	0.9	1
2	Using a Digital Twin to Study the Influence of Climatic Changes on High Ozone Levels in Bulgaria and Europe. Atmosphere, 2022, 13, 932.	2.3	8
3	Advanced stochastic approaches for Sobolâ€™ sensitivity indices evaluation. Neural Computing and Applications, 2021, 33, 1999-2014.	5.6	20
4	Advanced Quasi-Monte Carlo Algorithms for Multidimensional Integrals in Air Pollution Modelling. Studies in Computational Intelligence, 2021, , 155-167.	0.9	1
5	Sensitivity Studies of an Air Pollution Model by Using Efficient Stochastic Algorithms for Multidimensional Numerical Integration. Studies in Computational Intelligence, 2021, , 184-195.	0.9	1
6	Explicit Rungeâ€“Kutta Methods Combined with Advanced Versions of the Richardson Extrapolation. Computational Methods in Applied Mathematics, 2020, 20, 739-762.	0.8	7
7	Numerical Methods for Scientific Computations and Advanced Applications II: Preface. Computers and Mathematics With Applications, 2020, 80, 285.	2.7	0
8	Studying the Influence of Climate Changes on European Ozone Levels. Lecture Notes in Computer Science, 2020, , 391-399.	1.3	0
9	Efficient Stochastic Algorithms for the Sensitivity Analysis Problem in the Air Pollution Modelling. Lecture Notes in Computer Science, 2020, , 420-428.	1.3	1
10	Sensitivity Analysis of an Air Pollution Model by Using Quasi-Monte Carlo Algorithms for Multidimensional Numerical Integration. Lecture Notes in Computer Science, 2019, , 281-289.	1.3	0
11	Advanced algorithms for studying the impact of climate changes on ozone levels in the atmosphere. International Journal of Environment and Pollution, 2019, 66, 212.	0.2	0
12	LARGE-SCALE AIR POLLUTION MODELING IN EUROPE UNDER DIFFERENT CLIMATIC SCENARIOS. International Journal of Big Data Mining for Global Warming, 2019, 01, 1950009.	1.0	4
13	Absolute Stability and Implementation of the Two-Times Repeated Richardson Extrapolation Together with Explicit Runge-Kutta Methods. Lecture Notes in Computer Science, 2019, , 678-686.	1.3	3
14	Stability Properties of Repeated Richardson Extrapolation Applied Together with Some Implicit Runge-Kutta Methods. Lecture Notes in Computer Science, 2019, , 114-125.	1.3	2
15	Advanced algorithms for studying the impact of climate changes on ozone levels in the atmosphere. International Journal of Environment and Pollution, 2019, 66, 212.	0.2	0
16	Using Advanced Mathematical Tools in Complex Studies Related to Climate Changes and High Pollution Levels. Lecture Notes in Computer Science, 2018, , 552-559.	1.3	0
17	Stability of the Richardson Extrapolation combined with some implicit Rungeâ€“Kutta methods. Journal of Computational and Applied Mathematics, 2017, 310, 224-240.	2.0	9
18	Numerical algorithms for scientific and engineering applications. Journal of Computational and Applied Mathematics, 2017, 310, 1-4.	2.0	1

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19	On the Performance, Scalability and Sensitivity Analysis of a Large Air Pollution Model. Procedia Computer Science, 2016, 80, 2053-2061.	2.0	1
20	Relations between Climatic Changes and High Pollution Levels in Bulgaria. Open Journal of Applied Sciences, 2016, 06, 386-401.	0.4	4
21	Impact of Climatic Changes on Pollution Levels. Mathematics in Industry, 2016, , 129-161.	0.3	1
22	Preparing input data for sensitivity analysis of an air pollution model by using high-performance supercomputers and algorithms. Computers and Mathematics With Applications, 2015, 70, 2773-2782.	2.7	2
23	Selecting Explicit Runge-Kutta Methods with Improved Stability Properties. Lecture Notes in Computer Science, 2015, , 409-416.	1.3	0
24	Mathematical Treatment of Environmental Models. Mathematics in Industry, 2014, , 65-70.	0.3	0
25	Studying absolute stability properties of the Richardson Extrapolation combined with explicit Rungeâ€"Kutta methods. Computers and Mathematics With Applications, 2014, 67, 2294-2307.	2.7	17
26	Application of Richardson extrapolation for multi-dimensional advection equations. Computers and Mathematics With Applications, 2014, 67, 2279-2293.	2.7	9
27	Spline interpolation for modelling of accumulated effects of ozone. International Journal of Environment and Pollution, 2014, 54, 17.	0.2	1
28	Sensitivity studies of pollutant concentrations calculated by the UNI-DEM with respect to the input emissions. Open Mathematics, 2013, 11, .	1.0	19
29	The convergence of diagonally implicit Rungeâ€"Kutta methods combined with Richardson extrapolation. Computers and Mathematics With Applications, 2013, 65, 395-401.	2.7	11
30	Advanced algorithms for multidimensional sensitivity studies of large-scale air pollution models based on Sobol sequences. Computers and Mathematics With Applications, 2013, 65, 338-351.	2.7	33
31	Influence of climatic changes on pollution levels in the Balkan Peninsula. Computers and Mathematics With Applications, 2013, 65, 544-562.	2.7	24
32	Applying approximate LU-factorizations as preconditioners in eight iterative methods for solving systems of linear algebraic equations. Open Mathematics, 2013, 11, .	1.0	1
33	High Performance Computing of Data for a New Sensitivity Analysis Algorithm, Applied in an Air Pollution Model. Lecture Notes in Computer Science, 2013, , 428-436.	1.3	0
34	Richardson Extrapolation combined with the sequential splitting procedure and the Î¸-method. Central European Journal of Mathematics, 2012, 10, 159-172.	0.7	10
35	New Parallel Implementation of an Air Pollution Computer Model â€" Performance Study on an IBM Blue Gene/P Computer. Lecture Notes in Computer Science, 2012, , 283-290.	1.3	1
36	Parallel Computation of Sensitivity Analysis Data for the Danish Eulerian Model. Lecture Notes in Computer Science, 2012, , 307-315.	1.3	9

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37	Influence of Climatic Changes on Pollution Levels in Hungary and Surrounding Countries. Atmosphere, 2011, 2, 201-221.	2.3	21
38	Implementation of sparse matrix algorithms in an advectionâ€“diffusionâ€“chemistry module. Journal of Computational and Applied Mathematics, 2011, 236, 342-353.	2.0	8
39	Air pollution modelling, sensitivity analysis and parallel implementation. International Journal of Environment and Pollution, 2011, 46, 83.	0.2	23
40	Studying air pollution levels in the Balkan Peninsula area by using an IBM Blue Gene/P computer. International Journal of Environment and Pollution, 2011, 46, 97.	0.2	4
41	Solving Advection Equations by Applying the Crank-Nicolson Scheme Combined with the Richardson Extrapolation. International Journal of Differential Equations, 2011, 2011, 1-16.	0.8	3
42	Richardson Extrapolated Numerical Methods for Treatment of One-Dimensional Advection Equations. Lecture Notes in Computer Science, 2011, , 198-206.	1.3	1
43	Specialized Sparse Matrices Solver in the Chemical Part of an Environmental Model. Lecture Notes in Computer Science, 2011, , 158-166.	1.3	0
44	Efficient implementation of stable Richardson Extrapolation algorithms. Computers and Mathematics With Applications, 2010, 60, 2309-2325.	2.7	32
45	Impact of future climatic changes on high ozone levels in European suburban areas. Climatic Change, 2010, 101, 447-483.	3.6	37
46	Special Issue on Advanced Computational Algorithms: Introduction. Journal of Computational and Applied Mathematics, 2010, 235, 345-347.	2.0	0
47	Studying the sensitivity of pollutantsâ€™ concentrations caused by variations of chemical rates. Journal of Computational and Applied Mathematics, 2010, 235, 391-402.	2.0	27
48	Stability of the Richardson Extrapolation applied together with the <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si19.gif" display="inline" overflow="scroll"><mml:mi>Î¸</mml:mi></mml:math>-method. Journal of Computational and Applied Mathematics, 2010, 235, 507-517.	2.0	24
49	Sensitivity Analysis of a Large-Scale Air Pollution Model: Numerical Aspects and a Highly Parallel Implementation. Lecture Notes in Computer Science, 2010, , 197-205.	1.3	3
50	On Some Stability Properties of the Richardson Extrapolation Applied Together with the Î¸-Method. Lecture Notes in Computer Science, 2010, , 54-66.	1.3	1
51	Runs of UNIâ€“DEM Model on IBM Blue Gene/P Computer and Analysis of the Model Performance. Lecture Notes in Computer Science, 2010, , 188-196.	1.3	2
52	Richardson-extrapolated sequential splitting and its application. Journal of Computational and Applied Mathematics, 2009, 226, 218-227.	2.0	11
53	Large scale scientific computations: Editorial introduction. Journal of Computational and Applied Mathematics, 2009, 226, 187-189.	2.0	0
54	Special issue on advanced numerical algorithms for large-scale computations: Introduction. Computers and Mathematics With Applications, 2008, 55, 2183-2184.	2.7	0

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55	Development of a data assimilation algorithm. Computers and Mathematics With Applications, 2008, 55, 2381-2393.	2.7	4
56	Special section: Applications of distributed and grid computing. Future Generation Computer Systems, 2008, 24, 582-584.	7.5	2
57	On the additive splitting procedures and their computer realization. Applied Mathematical Modelling, 2008, 32, 1552-1569.	4.2	5
58	Numerical and computational issues related to applied mathematical modelling. Applied Mathematical Modelling, 2008, 32, 1475-1476.	4.2	0
59	Large scale computations in environmental modelling: Editorial introduction. Ecological Modelling, 2008, 217, 207-208.	2.5	1
60	New parameterization scheme for effective indices for emissions from road transport. Ecological Modelling, 2008, 217, 270-278.	2.5	0
61	Impact of climate changes on pollution levels in Denmark. Ecological Modelling, 2008, 217, 305-319.	2.5	33
62	Different splitting techniques with application to air pollution models. International Journal of Environment and Pollution, 2008, 32, 174.	0.2	10
63	Impact of future climate changes on high pollution levels. International Journal of Environment and Pollution, 2008, 32, 200.	0.2	13
64	Effective Indices for Emissions from Road Transport. Lecture Notes in Computer Science, 2008, , 401-409.	1.3	1
65	Parallelization of Advection-Diffusion-Chemistry Modules. Lecture Notes in Computer Science, 2008, , 28-39.	1.3	0
66	Testing the accuracy of a data assimilation algorithm. International Journal of Computational Science and Engineering, 2007, 3, 305.	0.5	6
67	Editorial introduction to the special issue on computational linear algebra and sparse matrix computations. Applicable Algebra in Engineering, Communications and Computing, 2007, 18, 205-207.	0.5	0
68	COMPUTATIONAL AND NUMERICAL BACKGROUND OF THE UNIFIED DANISH EULERIAN MODEL. , 2007, , 293-302.		1
69	ENVIRONMENTAL MODELLING FOR SECURITY: FUTURE NEEDS AND DEVELOPMENT OF COMPUTER NETWORKING, NUMERICS AND ALGORITHMS (WORKING GROUP 3). , 2007, , 351-356.		0
70	Intercomparison of Secondary Inorganic Aerosol Concentrations in the UK with Predictions of the Unified Danish Eulerian Model. Journal of Atmospheric Chemistry, 2006, 54, 43-66.	3.2	23
71	Error analysis of the partitioning procedures. Studies in Computational Mathematics, 2006, , 137-155.	0.2	0
72	Treatment of the chemical part: general ideas major numerical methods. Studies in Computational Mathematics, 2006, 13, 109-135.	0.2	0

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73	Using splitting techniques in the treatment of air pollution models. Studies in Computational Mathematics, 2006, , 43-87.	0.2	0
74	PDE systems arising in air pollution modelling and justification of the need for high speed computers. Studies in Computational Mathematics, 2006, , 1-41.	0.2	0
75	Testing Variational Data Assimilation Modules. Lecture Notes in Computer Science, 2006, , 395-402.	1.3	2
76	Parallel and GRID Implementation of a Large Scale Air Pollution Model. , 2006, , 475-482.		5
77	Treatment of Large Scientific Problems: An Introduction. Lecture Notes in Computer Science, 2006, , 828-830.	1.3	0
78	Large-Scale Computations with the Unified Danish Eulerian Model. Lecture Notes in Computer Science, 2006, , 43-52.	1.3	0
79	Challenges in Using Splitting Techniques for Large-Scale Environmental Modeling. , 2005, , 115-131.		9
80	Computational challenges in the numerical treatment of large air pollution models. Ecological Modelling, 2004, 179, 187-203.	2.5	27
81	Parallel runs of a large air pollution model on a grid of Sun computers. Mathematics and Computers in Simulation, 2004, 65, 557-577.	4.4	56
82	Operator splitting and commutativity analysis in the Danish Eulerian Model. Mathematics and Computers in Simulation, 2004, 67, 217-233.	4.4	25
83	Studying the influence of biogenic emissions on AOT40 levels in Europe. International Journal of Environment and Pollution, 2004, 22, 29.	0.2	19
84	A fine-resolution modelling study of pollution levels in Bulgaria. Part 1: SO<SUB align=right>x and NO<SUB align=right>x pollution. International Journal of Environment and Pollution, 2004, 22, 186.	0.2	22
85	A fine-resolution modelling study of pollution levels in Bulgaria. Part 2: high ozone levels. International Journal of Environment and Pollution, 2004, 22, 203.	0.2	25
86	Comprehensive Air Pollution Studies with the Unified Danish Eulerian Model. Lecture Notes in Computer Science, 2004, , 1125-1137.	1.3	0
87	Parallel Solution of Very Large Sparse Systems of Linear Algebraic Equations. Lecture Notes in Computer Science, 2004, , 53-64.	1.3	0
88	Studying Pollution Levels in Bulgaria by Using a Fine Resolution Dispersion Model. , 2004, , 245-252.		2
89	Comparison of Ten Methods for the Solution of Large and Sparse Linear Algebraic Systems. Lecture Notes in Computer Science, 2003, , 24-35.	1.3	1
90	Implementation of Bilinear Nonconforming Finite Elements in an Eulerian Air Pollution Model: Results Obtained by Using the Rotational Test. Lecture Notes in Computer Science, 2003, , 379-386.	1.3	1

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91	Trends of Hungarian air pollution levels on a long time-scale. Atmospheric Environment, 2002, 36, 4145-4156.	4.1	41
92	Parallel matrix computations in air pollution modelling. Parallel Computing, 2002, 28, 355-368.	2.1	19
93	Massive Data Set Issues in Air Pollution Modelling. Massive Computing, 2002, , 1169-1220.	0.4	10
94	Future air quality in Danish cities due to new emission and fuel quality directives of the European Union. International Journal of Vehicle Design, 2001, 27, 195.	0.3	3
95	Calculating losses of crops in Denmark caused by high ozone levels. Environmental Modeling and Assessment, 2001, 6, 35-55.	2.2	32
96	Computational challenges in large-scale air pollution modelling. , 2001, , .		7
97	Parallel Implementation of a Large-Scale 3-D Air Pollution Model. Lecture Notes in Computer Science, 2001, , 309-316.	1.3	16
98	Time-Integration Algorithms for the Computer Treatment of the Horizontal Advection in Air Pollution Models. Lecture Notes in Computer Science, 2001, , 81-92.	1.3	0
99	Efficient Treatment of Large-Scale Air Pollution Models on Supercomputers. Lecture Notes in Computer Science, 2001, , 82-91.	1.3	0
100	Numerical modelling of transport, dispersion, and deposition â€" validation against ETEX-1, ETEX-2 and Chernobyl. Environmental Modelling and Software, 2000, 15, 521-531.	4.5	17
101	Studying Ozone Episodes In Europe With The Danish Eulerian Model. , 2000, , 331-338.		0
102	Real time predictions of transport, dispersion and deposition from nuclear accidents. Management of Environmental Quality, 1999, 10, 216-223.	0.4	8
103	DEVELOPMENT OF PARTITIONED ODE METHODS WITH AN APPLICATION TO AIR POLLUTION MODELS. , 1999, , .		0
104	Testing the importance of accurate meteorological input fields and parameterizations in atmospheric transport modelling using dream - validation against ETEX-1. Atmospheric Environment, 1998, 32, 4167-4186.	4.1	38
105	Studying cumulative ozone exposures in Europe during a 7-year period. Journal of Geophysical Research, 1997, 102, 23917-23935.	3.3	62
106	Solving sparse linear least-squares problems on some supercomputers by using large dense blocks. BIT Numerical Mathematics, 1997, 37, 535-558.	2.0	2
107	Using a combination of two models in tracer simulations. Mathematical and Computer Modelling, 1996, 23, 99-115.	2.0	19
108	Improving the numerical stability and the performance of a parallel sparse solver. Computers and Mathematics With Applications, 1995, 30, 81-96.	2.7	7

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109	A locally optimized reordering algorithm and its application to a parallel sparse linear system solver. Computing (Vienna/New York), 1995, 54, 39-67.	4.8	14
110	Running air pollution models on massively parallel machines. Parallel Computing, 1995, 21, 971-991.	2.1	16
111	Numerical Treatment of Large Air Pollution Models. Environmental Science and Technology Library, 1995, , 69-109.	0.1	3
112	A comparison of the predictions of an eulerian atmospheric transport â€" chemistry model with experimental measurements over the North sea. Atmospheric Environment, 1994, 28, 497-516.	4.1	47
113	Comparison of massively parallel SIMD computers using air pollution models. Lecture Notes in Computer Science, 1994, , 110-126.	1.3	0
114	Studying high ozone concentrations by using the Danish Eulerian model. Atmospheric Environment Part A General Topics, 1993, 27, 845-865.	1.3	42
115	A Eulerian air pollution model for Europe with nonlinear chemistry. Journal of Atmospheric Chemistry, 1992, 15, 1-37.	3.2	76
116	Iterative methods for nonlinear operator equations. Applied Mathematics and Computation, 1992, 51, 167-180.	2.2	9
117	Vectorizing codes for studying long-range transport of air pollutants. Mathematical and Computer Modelling, 1991, 15, 37-48.	2.0	10
118	Running large air pollution models on high speed computers. Mathematical and Computer Modelling, 1990, 14, 737-740.	2.0	11
119	A parallel hybrid sparse linear system solver. Computing Systems in Engineering: an International Journal, 1990, 1, 183-195.	0.5	29
120	Comparison of numerical techniques for use in air pollution models with non-linear chemical reactions. Atmospheric Environment, 1989, 23, 967-983.	1.0	82
121	Advances in the theory of variable stepsize variable formula methods for ordinary differential equations. Applied Mathematics and Computation, 1989, 31, 209-249.	2.2	8
122	Exploiting the separability in the solution of systems of linear ordinary differential equations. Computers and Mathematics With Applications, 1989, 18, 421-438.	2.7	1
123	Solving large and sparse linear least-squares problems by conjugate gradient algorithms. Computers and Mathematics With Applications, 1988, 15, 185-202.	2.7	26
124	Treatment of some mathematical models describing long-range transport of air pollutants on vector processors. Parallel Computing, 1988, 6, 87-98.	2.1	23
125	Computations with symmetric, positive definite and band matrices on a parallel vector processor. Parallel Computing, 1988, 8, 301-312.	2.1	10
126	Numerical treatment of large-scale air pollution models. Computers and Mathematics With Applications, 1988, 16, 93-109.	2.7	14

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127	A survey of the advances in the exploitation of the sparsity in the solution of large problems. Journal of Computational and Applied Mathematics, 1987, 20, 83-105.	2.0	5
128	Condition Number Estimators in a Sparse Matrix Software. SIAM Journal on Scientific and Statistical Computing, 1986, 7, 1175-1189.	1.5	9
129	Numerical treatment of models arising in nuclear magnetic resonance spectroscopy. Advances in Engineering Software (1978), 1986, 8, 223-233.	0.1	3
130	Variable stepsize variable formula methods based on predictor-corrector schemes. Applied Numerical Mathematics, 1985, 1, 395-416.	2.1	8
131	Mathematical model for studying the sulphur pollution over Europe. Journal of Computational and Applied Mathematics, 1985, 12-13, 651-666.	2.0	26
132	Exploiting the sparsity in the solution of linear ordinary differential equations. Computers and Mathematics With Applications, 1985, 11, 1069-1087.	2.7	3
133	General scheme for solving linear algebraic problems by direct methods. Applied Numerical Mathematics, 1985, 1, 177-186.	2.1	4
134	Implementation of a variable stepsize variable formula method in the time-integration part of a code for treatment of long-range transport of air pollutants. Journal of Computational Physics, 1984, 55, 278-301.	3.8	65
135	Application of predictor-corrector schemes with several correctors in solving air pollution problems. BIT Numerical Mathematics, 1984, 24, 700-715.	2.0	54
136	Consistency and convergence of general linear multistep variable stepsize variable formula methods. Computing (Vienna/New York), 1983, 31, 47-67.	4.8	19
137	Testing subroutines solving advection-diffusion equations in atmospheric environments. Computers and Fluids, 1983, 11, 13-38.	2.5	23
138	Stability restrictions on time-stepsize for numerical integration of first-order partial differential equations. Journal of Computational Physics, 1983, 51, 1-27.	3.8	29
139	Use of Iterative Refinement in the Solution of Sparse Linear Systems. SIAM Journal on Numerical Analysis, 1982, 19, 381-399.	2.3	64
140	Comparison of Two Algorithms for Solving Large Linear Systems. SIAM Journal on Scientific and Statistical Computing, 1982, 3, 486-501.	1.5	12
141	A method for reduction of the storage requirement by the use of some special computer facilities; application to linear systems of algebraic equations. Computers & Chemistry, 1982, 6, 181-192.	1.2	0
142	Comparison of two pivotal strategies in sparse plane rotations. Computers and Mathematics With Applications, 1982, 8, 119-135.	2.7	21
143	Modified Diagonally Implicit Rungeâ€“Kutta Methods. SIAM Journal on Scientific and Statistical Computing, 1981, 2, 321-334.	1.5	35
144	Zero-stability properties of the three-ordinate variable stepsize variable formula methods. Numerische Mathematik, 1981, 37, 157-166.	1.9	29

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145	A testing scheme for subroutines solving large linear problems. Computers & Chemistry, 1981, 5, 91-100.	1.2	9
146	Implementation of an iterative refinement option in a code for large and sparse systems. Computers & Chemistry, 1980, 4, 87-99.	1.2	8
147	The use of sparse matrix technique in the numerical integration of stiff systems of linear ordinary differential equations. Computers & Chemistry, 1980, 4, 1-12.	1.2	12
148	Classification of the systems of ordinary differential equations and practical aspects in the numerical integration of large systems. Computers & Chemistry, 1980, 4, 13-18.	1.2	6
149	On Some Pivotal Strategies in Gaussian Elimination by Sparse Technique. SIAM Journal on Numerical Analysis, 1980, 17, 18-30.	2.3	88
150	On Solving Some Large Linear Problems: By Direct Methods. DAIMI Report Series, 1980, 9, .	0.1	3
151	Modified Diagonally Implicit Runge-Kutta Methods. DAIMI Report Series, 1980, 9, .	0.1	1
152	Automatic Solution of Differential Equations Based on the User of Linear Multistep Methods. ACM Transactions on Mathematical Software, 1979, 5, 401-414.	2.9	14
153	Application of backward differentiation methods to the finite element solution of time-dependent problems. International Journal for Numerical Methods in Engineering, 1979, 14, 1051-1061.	2.8	17
154	Solution of ordinary differential equations with time dependent coefficients. Development of a semiexplicit Runge Kutta algorithm and application to a spectroscopic problem. Computers & Chemistry, 1979, 3, 57-63.	1.2	9
155	Two-parameter families of predictor-corrector methods for the solution of ordinary differential equations. BIT Numerical Mathematics, 1979, 19, 503-517.	2.0	13
156	Stability properties of variable stepsize variable formula methods. Numerische Mathematik, 1978, 31, 175-182.	1.9	34
157	Efficient implementation of advanced Richardson Extrapolation in an atmospheric chemical scheme. Journal of Mathematical Chemistry, 0, , 1.	1.5	2