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	On Some Pivotal Strategies in Gaussian Elimination by Sparse Technique. SIAM Journal on Numerical Analysis, 1980, 17, 18-30.	2.3	88
2	Comparison of numerical techniques for use in air pollution models with non-linear chemical reactions. Atmospheric Environment, 1989, 23, 967-983.	1.0	82
3	A Eulerian air pollution model for Europe with nonlinear chemistry. Journal of Atmospheric Chemistry, 1992, 15, 1-37.	3.2	76
4	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
5	Use of Iterative Refinement in the Solution of Sparse Linear Systems. SIAM Journal on Numerical Analysis, 1982, 19, 381-399.	2.3	64
6	Studying cumulative ozone exposures in Europe during a 7-year period. Journal of Geophysical Research, 1997, 102, 23917-23935.	3.3	62
7	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
8	Application of predictor-corrector schemes with several correctors in solving air pollution problems. BIT Numerical Mathematics, 1984, 24, 700-715.	2.0	54
9	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
10	Studying high ozone concentrations by using the Danish Eulerian model. Atmospheric Environment Part A General Topics, 1993, 27, 845-865.	1.3	42
11	Trends of Hungarian air pollution levels on a long time-scale. Atmospheric Environment, 2002, 36, 4145-4156.	4.1	41
12	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
13	Impact of future climatic changes on high ozone levels in European suburban areas. Climatic Change, 2010, 101, 447-483.	3.6	37
14	Modified Diagonally Implicit Rungeâ€"Kutta Methods. SIAM Journal on Scientific and Statistical Computing, 1981, 2, 321-334.	1.5	35
15	Stability properties of variable stepsize variable formula methods. Numerische Mathematik, 1978, 31, 175-182.	1.9	34
16	Impact of climate changes on pollution levels in Denmark. Ecological Modelling, 2008, 217, 305-319.	2.5	33
17	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
18	Calculating losses of crops in Denmark caused by high ozone levels. Environmental Modeling and Assessment, 2001, 6, 35-55.	2.2	32

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19	Efficient implementation of stable Richardson Extrapolation algorithms. Computers and Mathematics With Applications, 2010, 60, 2309-2325.	2.7	32
20	Zero-stability properties of the three-ordinate variable stepsize variable formula methods. Numerische Mathematik, 1981, 37, 157-166.	1.9	29
21	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
22	A parallel hybrid sparse linear system solver. Computing Systems in Engineering: an International Journal, 1990, 1, 183-195.	0.5	29
23	Computational challenges in the numerical treatment of large air pollution models. Ecological Modelling, 2004, 179, 187-203.	2.5	27
24	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
25	Mathematical model for studying the sulphur pollution over Europe. Journal of Computational and Applied Mathematics, 1985, 12-13, 651-666.	2.0	26
26	Solving large and sparse linear least-squares problems by conjugate gradient algorithms. Computers and Mathematics With Applications, 1988, 15, 185-202.	2.7	26
27	Operator splitting and commutativity analysis in the Danish Eulerian Model. Mathematics and Computers in Simulation, 2004, 67, 217-233.	4.4	25
28	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
29	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
30	Influence of climatic changes on pollution levels in the Balkan Peninsula. Computers and Mathematics With Applications, 2013, 65, 544-562.	2.7	24
31	Testing subroutines solving advection-diffusion equations in atmospheric environments. Computers and Fluids, 1983, 11, 13-38.	2.5	23
32	Treatment of some mathematical models describing long-range transport of air pollutants on vector processors. Parallel Computing, 1988, 6, 87-98.	2.1	23
33	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
34	Air pollution modelling, sensitivity analysis and parallel implementation. International Journal of Environment and Pollution, 2011, 46, 83.	0.2	23
35	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
36	Comparison of two pivotal strategies in sparse plane rotations. Computers and Mathematics With Applications, 1982, 8, 119-135.	2.7	21

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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	Advanced stochastic approaches for Sobolâ€™ sensitivity indices evaluation. Neural Computing and Applications, 2021, 33, 1999-2014.	5.6	20
39	Consistency and convergence of general linear multistep variable stepsize variable formula methods. Computing (Vienna/New York), 1983, 31, 47-67.	4.8	19
40	Using a combination of two models in tracer simulations. Mathematical and Computer Modelling, 1996, 23, 99-115.	2.0	19
41	Parallel matrix computations in air pollution modelling. Parallel Computing, 2002, 28, 355-368.	2.1	19
42	Studying the influence of biogenic emissions on AOT40 levels in Europe. International Journal of Environment and Pollution, 2004, 22, 29.	0.2	19
43	Sensitivity studies of pollutant concentrations calculated by the UNI-DEM with respect to the input emissions. Open Mathematics, 2013, 11, .	1.0	19
44	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
45	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
46	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
47	Running air pollution models on massively parallel machines. Parallel Computing, 1995, 21, 971-991.	2.1	16
48	Parallel Implementation of a Large-Scale 3-D Air Pollution Model. Lecture Notes in Computer Science, 2001, , 309-316.	1.3	16
49	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
50	Numerical treatment of large-scale air pollution models. Computers and Mathematics With Applications, 1988, 16, 93-109.	2.7	14
51	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
52	Two-parameter families of predictor-corrector methods for the solution of ordinary differential equations. BIT Numerical Mathematics, 1979, 19, 503-517.	2.0	13
53	Impact of future climate changes on high pollution levels. International Journal of Environment and Pollution, 2008, 32, 200.	0.2	13
54	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

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55	Comparison of Two Algorithms for Solving Large Linear Systems. SIAM Journal on Scientific and Statistical Computing, 1982, 3, 486-501.	1.5	12
56	Running large air pollution models on high speed computers. Mathematical and Computer Modelling, 1990, 14, 737-740.	2.0	11
57	Richardson-extrapolated sequential splitting and its application. Journal of Computational and Applied Mathematics, 2009, 226, 218-227.	2.0	11
58	The convergence of diagonally implicit Rungeâ€"Kutta methods combined with Richardson extrapolation. Computers and Mathematics With Applications, 2013, 65, 395-401.	2.7	11
59	Computations with symmetric, positive definite and band matrices on a parallel vector processor. Parallel Computing, 1988, 8, 301-312.	2.1	10
60	Vectorizing codes for studying long-range transport of air pollutants. Mathematical and Computer Modelling, 1991, 15, 37-48.	2.0	10
61	Different splitting techniques with application to air pollution models. International Journal of Environment and Pollution, 2008, 32, 174.	0.2	10
62	Richardson Extrapolation combined with the sequential splitting procedure and the Î¸-method. Central European Journal of Mathematics, 2012, 10, 159-172.	0.7	10
63	Massive Data Set Issues in Air Pollution Modelling. Massive Computing, 2002, , 1169-1220.	0.4	10
64	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
65	A testing scheme for subroutines solving large linear problems. Computers & Chemistry, 1981, 5, 91-100.	1.2	9
66	Condition Number Estimators in a Sparse Matrix Software. SIAM Journal on Scientific and Statistical Computing, 1986, 7, 1175-1189.	1.5	9
67	Iterative methods for nonlinear operator equations. Applied Mathematics and Computation, 1992, 51, 167-180.	2.2	9
68	Application of Richardson extrapolation for multi-dimensional advection equations. Computers and Mathematics With Applications, 2014, 67, 2279-2293.	2.7	9
69	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
70	Challenges in Using Splitting Techniques for Large-Scale Environmental Modeling. , 2005, , 115-131.		9
71	Parallel Computation of Sensitivity Analysis Data for the Danish Eulerian Model. Lecture Notes in Computer Science, 2012, , 307-315.	1.3	9
72	Implementation of an iterative refinement option in a code for large and sparse systems. Computers & Chemistry, 1980, 4, 87-99.	1.2	8

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73	Variable stepsize variable formula methods based on predictor-corrector schemes. Applied Numerical Mathematics, 1985, 1, 395-416.	2.1	8
74	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
75	Real time predictions of transport, dispersion and deposition from nuclear accidents. Management of Environmental Quality, 1999, 10, 216-223.	0.4	8
76	Implementation of sparse matrix algorithms in an advectionâ€“diffusionâ€“chemistry module. Journal of Computational and Applied Mathematics, 2011, 236, 342-353.	2.0	8
77	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
78	Improving the numerical stability and the performance of a parallel sparse solver. Computers and Mathematics With Applications, 1995, 30, 81-96.	2.7	7
79	Computational challenges in large-scale air pollution modelling. , 2001, , .		7
80	Explicit Rungeâ€“Kutta Methods Combined with Advanced Versions of the Richardson Extrapolation. Computational Methods in Applied Mathematics, 2020, 20, 739-762.	0.8	7
81	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
82	Testing the accuracy of a data assimilation algorithm. International Journal of Computational Science and Engineering, 2007, 3, 305.	0.5	6
83	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
84	On the additive splitting procedures and their computer realization. Applied Mathematical Modelling, 2008, 32, 1552-1569.	4.2	5
85	Parallel and GRID Implementation of a Large Scale Air Pollution Model. , 2006, , 475-482.		5
86	General scheme for solving linear algebraic problems by direct methods. Applied Numerical Mathematics, 1985, 1, 177-186.	2.1	4
87	Development of a data assimilation algorithm. Computers and Mathematics With Applications, 2008, 55, 2381-2393.	2.7	4
88	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
89	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
90	Relations between Climatic Changes and High Pollution Levels in Bulgaria. Open Journal of Applied Sciences, 2016, 06, 386-401.	0.4	4

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91	Exploiting the sparsity in the solution of linear ordinary differential equations. Computers and Mathematics With Applications, 1985, 11, 1069-1087.	2.7	3
92	Numerical treatment of models arising in nuclear magnetic resonance spectroscopy. Advances in Engineering Software (1978), 1986, 8, 223-233.	0.1	3
93	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
94	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
95	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
96	On Solving Some Large Linear Problems: By Direct Methods. DAIMI Report Series, 1980, 9, .	0.1	3
97	Numerical Treatment of Large Air Pollution Models. Environmental Science and Technology Library, 1995, , 69-109.	0.1	3
98	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
99	Solving sparse linear least-squares problems on some supercomputers by using large dense blocks. BIT Numerical Mathematics, 1997, 37, 535-558.	2.0	2
100	Special section: Applications of distributed and grid computing. Future Generation Computer Systems, 2008, 24, 582-584.	7.5	2
101	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
102	Testing Variational Data Assimilation Modules. Lecture Notes in Computer Science, 2006, , 395-402.	1.3	2
103	Studying Pollution Levels in Bulgaria by Using a Fine Resolution Dispersion Model. , 2004, , 245-252.		2
104	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
105	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
106	Efficient implementation of advanced Richardson Extrapolation in an atmospheric chemical scheme. Journal of Mathematical Chemistry, 0, , 1.	1.5	2
107	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
108	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

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109	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
110	Large scale computations in environmental modelling: Editorial introduction. Ecological Modelling, 2008, 217, 207-208.	2.5	1
111	Applying approximate LU-factorizations as preconditioners in eight iterative methods for solving systems of linear algebraic equations. Open Mathematics, 2013, 11, .	1.0	1
112	Spline interpolation for modelling of accumulated effects of ozone. International Journal of Environment and Pollution, 2014, 54, 17.	0.2	1
113	On the Performance, Scalability and Sensitivity Analysis of a Large Air Pollution Model. Procedia Computer Science, 2016, 80, 2053-2061.	2.0	1
114	Numerical algorithms for scientific and engineering applications. Journal of Computational and Applied Mathematics, 2017, 310, 1-4.	2.0	1
115	COMPUTATIONAL AND NUMERICAL BACKGROUND OF THE UNIFIED DANISH EULERIAN MODEL. , 2007, , 293-302.		1
116	Advanced Quasi-Monte Carlo Algorithms for Multidimensional Integrals in Air Pollution Modelling. Studies in Computational Intelligence, 2021, , 155-167.	0.9	1
117	Effective Indices for Emissions from Road Transport. Lecture Notes in Computer Science, 2008, , 401-409.	1.3	1
118	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
119	Richardson Extrapolated Numerical Methods for Treatment of One-Dimensional Advection Equations. Lecture Notes in Computer Science, 2011, , 198-206.	1.3	1
120	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
121	Modified Diagonally Implicit Runge-Kutta Methods. DAIMI Report Series, 1980, 9, .	0.1	1
122	Impact of Climatic Changes on Pollution Levels. Mathematics in Industry, 2016, , 129-161.	0.3	1
123	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
124	Efficient Stochastic Algorithms for the Sensitivity Analysis Problem in the Air Pollution Modelling. Lecture Notes in Computer Science, 2020, , 420-428.	1.3	1
125	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
126	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

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127	Comparison of massively parallel SIMD computers using air pollution models. Lecture Notes in Computer Science, 1994, , 110-126.	1.3	0
128	Error analysis of the partitioning procedures. Studies in Computational Mathematics, 2006, , 137-155.	0.2	0
129	Treatment of the chemical part: general ideas major numerical methods. Studies in Computational Mathematics, 2006, 13, 109-135.	0.2	0
130	Using splitting techniques in the treatment of air pollution models. Studies in Computational Mathematics, 2006, , 43-87.	0.2	0
131	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
132	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
133	Special issue on advanced numerical algorithms for large-scale computations: Introduction. Computers and Mathematics With Applications, 2008, 55, 2183-2184.	2.7	0
134	Numerical and computational issues related to applied mathematical modelling. Applied Mathematical Modelling, 2008, 32, 1475-1476.	4.2	0
135	New parameterization scheme for effective indices for emissions from road transport. Ecological Modelling, 2008, 217, 270-278.	2.5	0
136	Large scale scientific computations: Editorial introduction. Journal of Computational and Applied Mathematics, 2009, 226, 187-189.	2.0	0
137	Special Issue on Advanced Computational Algorithms: Introduction. Journal of Computational and Applied Mathematics, 2010, 235, 345-347.	2.0	0
138	Mathematical Treatment of Environmental Models. Mathematics in Industry, 2014, , 65-70.	0.3	0
139	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
140	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
141	Numerical Methods for Scientific Computations and Advanced Applications II: Preface. Computers and Mathematics With Applications, 2020, 80, 285.	2.7	0
142	Studying Ozone Episodes In Europe With The Danish Eulerian Model. , 2000, , 331-338.		0
143	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
144	Efficient Treatment of Large-Scale Air Pollution Models on Supercomputers. Lecture Notes in Computer Science, 2001, , 82-91.	1.3	0

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145	Comprehensive Air Pollution Studies with the Unified Danish Eulerian Model. Lecture Notes in Computer Science, 2004, , 1125-1137.	1.3	0
146	Parallel Solution of Very Large Sparse Systems of Linear Algebraic Equations. Lecture Notes in Computer Science, 2004, , 53-64.	1.3	0
147	Treatment of Large Scientific Problems: An Introduction. Lecture Notes in Computer Science, 2006, , 828-830.	1.3	0
148	Large-Scale Computations with the Unified Danish Eulerian Model. Lecture Notes in Computer Science, 2006, , 43-52.	1.3	0
149	Parallelization of Advection-Diffusion-Chemistry Modules. Lecture Notes in Computer Science, 2008, , 28-39.	1.3	0
150	Specialized Sparse Matrices Solver in the Chemical Part of an Environmental Model. Lecture Notes in Computer Science, 2011, , 158-166.	1.3	0
151	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
152	DEVELOPMENT OF PARTITIONED ODE METHODS WITH AN APPLICATION TO AIR POLLUTION MODELS. , 1999, , .		0
153	Selecting Explicit Runge-Kutta Methods with Improved Stability Properties. Lecture Notes in Computer Science, 2015, , 409-416.	1.3	0
154	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
155	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
156	Studying the Influence of Climate Changes on European Ozone Levels. Lecture Notes in Computer Science, 2020, , 391-399.	1.3	0
157	ENVIRONMENTAL MODELLING FOR SECURITY: FUTURE NEEDS AND DEVELOPMENT OF COMPUTER NETWORKING, NUMERICS AND ALGORITHMS (WORKING GROUP 3). , 2007, , 351-356.		0