James Glimm

List of Publications by Year
in descending order

Version: 2024-02-01

177 papers	7,501 citations	76294 40 h-index	64755 79 g-index
192 all docs	192 docs citations	192 times ranked	2014 citing authors

#	Article	IF	Citations
1	Maximum entropy production as a necessary admissibility condition for the fluid Navierâ€“Stokes and Euler equations. SN Applied Sciences, 2020, 2, 1.	1.5	4
2	The computation of turbulent phenomena. Journal of Computational Science, 2020, 46, 101117.	1.5	0
3	The Î±s and Î¸s in Rayleighâ€“Taylor and Richtmyerâ€“Meshkov instabilities. Physica D: Nonlinear Phenomena, 2020, 404, 132356.	1.3	9
4	A crisis for the verification and validation of turbulence simulations. Physica D: Nonlinear Phenomena, 2020, 404, 132346.	1.3	6
5	Kolmogorov-type theory of compressible turbulence and inviscid limit of the Navierâ€“Stokes equations in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e22" altimg="si14.svg"><mml:msup><mml:mrow><mml:mi mathvariant="double-struck">R</mml:mi></mml:mrow><mml:mrow><mml:mn>3</mml:mn></mml:mrow></mml:msup></mml:math . Physica D: Nonlinear Phenomena, 2019, 400, 132138.	1.3	15
6	From Automated MRI Scan to Finite Elements. Lecture Notes in Computer Science, 2019, , 35-48.	1.0	0
7	The role of conductivity discontinuities in design of cardiac defibrillation. Chaos, 2018, 28, 013106.	1.0	8
8	A Novel Methodology of Stochastic Short Term Forecasting of Cloud Boundaries. SIAM-ASA Journal on Uncertainty Quantification, 2017, 5, 1279-1294.	1.1	1
9	Sharp Boundary Electrocardiac Simulations. SIAM Journal of Scientific Computing, 2016, 38, B100-B117.	1.3	5
10	Large eddy simulation, turbulent transport and the renormalization group. Annals of Mathematical Sciences and Applications, 2016, 1, 149-180.	0.2	2
11	Euler equation existence, non-uniqueness and mesh converged statistics. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2015, 373, 20140282.	1.6	5
12	Compositional, Approximate, and Quantitative Reasoning for Medical Cyber-Physical Systems with Application to Patient-Specific Cardiac Dynamics and Devices. Lecture Notes in Computer Science, 2014, , 356-364.	1.0	3
13	Quantification of margins and uncertainties using multiple gates and conditional probabilities. Reliability Engineering and System Safety, 2013, 114, 99-113.	5.1	6
14	New directions for Rayleighâ€“Taylor mixing. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2013, 371, 20120183.	1.6	45
15	Modeling turbulent mixing. , 2012, , .		0
16	High-Order Numerical Integration over Discrete Surfaces. SIAM Journal on Numerical Analysis, 2012, 50, 3061-3083.	1.1	10
17	Kolmogorovâ€™s Theory of Turbulence and Inviscid Limit of the Navier-Stokes Equations in $${mathbb {R}^3}$$. Communications in Mathematical Physics, 2012, 310, 267-283.	1.0	26
18	A Robust Front Tracking Method: Verification and Application to Simulation of the Primary Breakup of a Liquid Jet. SIAM Journal of Scientific Computing, 2011, 33, 1505-1524.	1.3	60

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19	A QMU approach for characterizing the operability limits of air-breathing hypersonic vehicles. Reliability Engineering and System Safety, 2011, 96, 1150-1160.	5.1	17
20	Teaching cardiac electrophysiology modeling to undergraduate students: laboratory exercises and GPU programming for the study of arrhythmias and spiral wave dynamics. American Journal of Physiology - Advances in Physiology Education, 2011, 35, 427-437.	0.8	20
21	Mathematical, Physical and Numerical Principles Essential for Models of Turbulent Mixing. The IMA Volumes in Mathematics and Its Applications, 2011, , 405-413.	0.5	1
22	Nearly discontinuous chaotic mixing. High Energy Density Physics, 2010, 6, 223-226.	0.4	7
23	Study of crystal growth and solute precipitation through front tracking method. Acta Mathematica Scientia, 2010, 30, 377-390.	0.5	9
24	Nonideal Rayleighâ€“Taylor mixing. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 12786-12792.	3.3	24
25	Weakly compressible two-pressure two-phase flow. Acta Mathematica Scientia, 2009, 29, 1497-1540.	0.5	1
26	Transonic Shock Formation in a Rarefaction Riemann Problem for the 2D Compressible Euler Equations. SIAM Journal on Applied Mathematics, 2008, 69, 720-742.	0.8	58
27	On validation of turbulent mixing simulations for Rayleighâ€“Taylor instability. Physics of Fluids, 2008, 20, .	1.6	8
28	Verification and validation of FronTier code and application to fluid interfacial instabilities. Physica Scripta, 2008, T132, 014049.	1.2	2
29	Direct Numerical Simulation of Bubbly Flows and Application to Cavitation Mitigation. Journal of Fluids Engineering, Transactions of the ASME, 2007, 129, 595-604.	0.8	22
30	Numerical evaluation of the impact of laser preheat on interface structure and instability. Physics of Plasmas, 2007, 14, 062703.	0.7	7
31	A numerical algorithm for MHD of free surface flows at low magnetic Reynolds numbers. Journal of Computational Physics, 2007, 226, 1532-1549.	1.9	25
32	Validation for turbulent mixing simulations. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1024501-1024502.	0.2	0
33	Uncertainty quantification for chaotic fluid dynamics. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1024505-1024506.	0.2	0
34	FronTier and applications to scientific and engineering problems. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1024507-1024508.	0.2	1
35	A Conservative Front Tracking Method in N-Dimensions. Journal of Scientific Computing, 2007, 31, 213-236.	1.1	10
36	A multiscale front tracking method for compressible free surface flows. Chemical Engineering Science, 2007, 62, 3538-3548.	1.9	5

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37	Feature extraction in the analysis of proteomic mass spectra. Proteomics, 2006, 6, 2095-2100.	1.3	23
38	A simple package for front tracking. Journal of Computational Physics, 2006, 213, 613-628.	1.9	123
39	Influence of scale-breaking phenomena on turbulent mixing rates. Physical Review E, 2006, 73, 016304.	0.8	27
40	Discrete Bubble Modeling of Unsteady Cavitating Flow. , 2006, , .		2
41	Comparison of Heterogeneous and Homogenized Numerical Models of Cavitation. International Journal for Multiscale Computational Engineering, 2006, 4, 377-389.	0.8	5
42	A TSTT integrated FronTier code and its applications in computational fluid physics. Journal of Physics: Conference Series, 2005, 16, 471-475.	0.3	7
43	Radiation-coupled front-tracking simulations for laser-driven shock experiments. Nonlinear Analysis: Theory, Methods & Applications, 2005, 63, e1635-e1644.	0.6	2
44	Front Tracking Algorithm Using Adaptively Refined Meshes. , 2005, , 83-89.		2
45	Spherical Richtmyer-Meshkov instability for axisymmetric flow. Mathematics and Computers in Simulation, 2004, 65, 417-430.	2.4	18
46	Statistical Riemann Problems and a Composition Law for Errors in Numerical Solutions of Shock Physics Problems. SIAM Journal of Scientific Computing, 2004, 26, 666-697.	1.3	12
47	All isomorphic distinct cases for multi-component interfaces in a block. Journal of Computational and Applied Mathematics, 2003, 152, 263-276.	1.1	2
48	Conservative Front Tracking with Improved Accuracy. SIAM Journal on Numerical Analysis, 2003, 41, 1926-1947.	1.1	93
49	A Two Pressure Numerical Model of Two Fluid Mixing. Multiscale Modeling and Simulation, 2003, 1, 458-484.	0.6	12
50	Theoretical methods for the determination of mixing. Laser and Particle Beams, 2003, 21, 429-436.	0.4	4
51	Detection of cancer-specific markers amid massive mass spectral data. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 14666-14671.	3.3	166
52	Dynamics of two-dimensional Rayleighâ€“Taylor bubbles for fluids with a finite density contrast. Physics of Fluids, 2003, 15, 2190-2197.	1.6	24
53	Jet breakup and spray formation in a diesel engine. , 2003, , 912-914.		4
54	Simulation of fluid mixing in acceleration driven instabilities. , 2003, , 908-911.		0

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55	Interface Tracking for Axisymmetric Flows. SIAM Journal of Scientific Computing, 2002, 24, 208-236.	1.3	35
56	Nonuniform Approach to Terminal Velocity for Single Mode Rayleigh-Taylor Instability. Acta Mathematicae Applicatae Sinica, 2002, 18, 1-8.	0.4	33
57	Title is missing!. Journal of Statistical Physics, 2002, 107, 241-260.	0.5	18
58	Risk Management for Petroleum Reservoir Production: A Simulation-Based Study of Prediction. Computational Geosciences, 2001, 5, 173-197.	1.2	17
59	Robust Computational Algorithms for Dynamic Interface Tracking in Three Dimensions. SIAM Journal of Scientific Computing, 2000, 21, 2240-2256.	1.3	123
60	Prediction of Protein Binding to DNA in the Presence of Water-Mediated Hydrogen Bonds. Journal of Molecular Modeling, 1999, 5, 125-133.	0.8	6
61	Stochastic partial differential equations: Selected applications in continuum physics. Mathematical Surveys, 1999, , 3-44.	0.0	7
62	Three-Dimensional Front Tracking. SIAM Journal of Scientific Computing, 1998, 19, 703-727.	1.3	287
63	Statistical Evolution of Chaotic Fluid Mixing. Physical Review Letters, 1998, 80, 712-715.	2.9	36
64	Stochastic methods for the prediction of complex multiscale phenomena. Quarterly of Applied Mathematics, 1998, 56, 741-765.	0.5	19
65	A twoâ€phase flow model of the Rayleighâ€“Taylor mixing zone. Physics of Fluids, 1996, 8, 816-825.	1.6	59
66	Renormalization group solution of two-phase flow equations for Rayleigh-Taylor mixing. Physics Letters, Section A: General, Atomic and Solid State Physics, 1996, 222, 171-176.	0.9	27
67	Global solutions to the compressible Euler equations with geometrical structure. Communications in Mathematical Physics, 1996, 180, 153-193.	1.0	108
68	Analysis and prediction of hydrogen bonding in protein-DNA complexes using parallel processors. Journal of Computational Chemistry, 1996, 17, 1712-1725.	1.5	2
69	Global solutions to the cylindrically symmetric rotating motion of isentropic gases. Zeitschrift Fur Angewandte Mathematik Und Physik, 1996, 47, 353-372.	0.7	7
70	Front tracking: A parallelized approach for internal boundaries and interfaces. Lecture Notes in Computer Science, 1996, , 257-266.	1.0	0
71	A renormalization group scaling analysis for compressible twoâ€phase flow. Physics of Fluids A, Fluid Dynamics, 1993, 5, 2929-2937.	1.6	15
72	Inertial range scaling of laminar shear flow as a model of turbulent transport. Communications in Mathematical Physics, 1992, 146, 217-229.	1.0	39

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73	A random field model for anomalous diffusion in heterogeneous porous media. Journal of Statistical Physics, 1991, 62, 415-424.	0.5	55
74	Nonlinear and Stochastic Phenomena: The Grand Challenge for Partial Differential Equations. SIAM Review, 1991, 33, 626-643.	4.2	23
75	Nonlinear Waves: Overview and Problems. The IMA Volumes in Mathematics and Its Applications, 1991, , 89-106.	0.5	2
76	Time dependent anomalous diffusion for flow in multi-fractal porous media. , 1990, , 79-89.		12
77	The interaction of nonlinear hyperbolic waves. Communications on Pure and Applied Mathematics, 1988, 41, 569-590.	1.2	52
78	The Bifurcation of Tracked Scalar Waves. SIAM Journal on Scientific and Statistical Computing, 1988, 9, 61-79.	1.5	83
79	Polymer Floods: A Case Study of Nonlinear Wave Analysis and of Instability Control in Tertiary Oil Recovery. SIAM Journal on Applied Mathematics, 1988, 48, 353-373.	0.8	44
80	On The Simulation of Heterogeneous Petroleum Reservoirs. The IMA Volumes in Mathematics and Its Applications, 1988, , 89-103.	0.5	8
81	Quantum Physics. , 1987, , .		459
82	Front tracking and two-dimensional Riemann problems. Advances in Applied Mathematics, 1985, 6, 259-290.	0.4	105
83	A computational model for interfaces. Advances in Applied Mathematics, 1985, 6, 422-435.	0.4	64
84	Expansions in statistical physics. Communications on Pure and Applied Mathematics, 1985, 38, 613-630.	1.2	17
85	Particles and Bound States and Progress Toward Unitarity and Scaling. , 1985, , 317-328.		0
86	A Tutorial Course in Constructive Field Theory. , 1985, , 383-418.		0
87	Quantum Field Theory and Statistical Mechanics. , 1985, , .		13
88	Critical Problems in Quantum Fields. , 1985, , 329-347.		0
89	The Î»(Ï•4)2 quantum field theory without cutoffs: II. The field operators and the approximate vacuum. , 1985, , 13-52.		79
90	Two and Three Body Equations in Quantum Field Models. , 1985, , 409-436.		0

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91	The Resummation of One Particle Lines. , 1985, , 450-476.		0
92	The Î»Ïˆ 2 4 Quantum Field Theory without Cutoffs. IV. Perturbations of the Hamiltonian. , 1985, , 177-193.		0
93	Positivity and Self Adjointness of the P(Ï•)2 Hamiltonian. , 1985, , 171-176.		0
94	The Resummation of One Particle Lines. , 1985, , 450-476.		0
95	Positivity of the Ïˆ 3 4 Hamiltonian. , 1985, , 194-243.		0
96	Two and Three Body Equations in Quantum Field Models. , 1985, , 409-436.		0
97	A Convergent Expansion about Mean Field Theory I. The Expansion. , 1985, , 263-283.		0
98	The Î»(Ïˆ 4)2 quantum field theory without cutoffs: II. The field operators and the approximate vacuum. , 1985, , 13-52.		0
99	The Î» Ï• 2 4 Quantum Field Theory without Cutoffs.IV. Perturbations of the Hamiltonian. , 1985, , 177-193.		0
100	Positivity and Self Adjointness of the (PÏˆ)2 Hamiltonian. , 1985, , 171-176.		0
101	The Î»(Ïˆ4)2 Quantum Field Theory without Cutoffs. , 1985, , 53-116.		0
102	Absolute bounds on vertices and couplings. , 1985, , 480-490.		0
103	A Î»Ïˆ 4 Quantum Field Theory without Cutoffs. I. , 1985, , 6-12.		0
104	Critical Problems in Quantum Fields. , 1985, , 329-347.		0
105	The Î»(Ï• 4)2 Quantum Field Theory without Cutoffs. , 1985, , 53-117.		0
106	Quantum Field Theory Models: Part II. The Yukawa Model. , 1985, , 69-108.		0
107	A tutorial course in constructive field theory. , 1985, , 383-418.		0
108	Charges, Vortices and Confinement. , 1985, , 516-527.		0

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109	On the approach to the critical point. , 1985, , 348-361.		1
110	The Wightman axioms and particle structure in the P (Ï•)2 quantum field model. , 1985, , 118-165.		0
111	Phase Transitions for Ï• 2 4 Quantum Fields. , 1985, , 249-262.		75
112	A Î»Ït 4 Quantum Field Theory without Cutoffs. I. , 1985, , 6-12.		0
113	Positivity of the Ï• 3 4 Hamiltonian. , 1985, , 194-243.		0
114	The Wightman axioms and particle structure in the â„˜(Ït)2 quantum field model. , 1985, , 118-165.		0
115	Particles and Bound States and Progress Toward Unitarity and Scaling. , 1985, , 317-328.		0
116	Quantum Field Theory Models. , 1985, , 11-121.		9
117	On the approach to the critical point. , 1985, , 348-361.		0
118	Remark on the Existence of Ït 4 4. , 1985, , 345-347.		0
119	Three-particle structure of Ït 4 interactions and the scaling limit. , 1985, , 397-408.		0
120	Particles and Scaling for Lattice Fields and Ising Models. , 1985, , 437-449.		0
121	The Particle Structure of the Weakly Coupled P(Ït)2 Model and Other Applications of High Temperature Expansions. , 1985, , 201-269.		2
122	A Convergent Expansion about Mean Field Theory I. The Expansion. , 1985, , 263-283.		0
123	Remark on the Existence of Ï• 4 4. , 1985, , 345-347.		0
124	Particles and Scaling for Lattice Fields and Ising Models. , 1985, , 437-449.		0
125	The Particle Structure of the Weakly Coupled P(Ït)2 Model and Other Applications of High Temperature Expansions: Part I. Physics of Quantum Field Models. , 1985, , 203-269.		0
126	A generalized Riemann problem for quasi-one-dimensional gas flows. Advances in Applied Mathematics, 1984, 5, 1-30.	0.4	85

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127	Quantum Physics. , 1981, , .		360
128	The Cluster Expansion. , 1981, , 321-343.		0
129	Lattice Gauge Theories. , 1980, , 45-52.		0
130	The resummation of one particle lines. Communications in Mathematical Physics, 1979, 67, 267-293.	1.0	9
131	Charges, vortices and confinement. Nuclear Physics B, 1979, 149, 49-60.	0.9	26
132	Multiple meron solutions of the classical Yang-Mills equation. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1978, 73, 167-170.	1.5	44
133	Meron Pairs and Quark Confinement. Physical Review Letters, 1978, 40, 277-278.	2.9	24
134	Droplet model for quark confinement. Physical Review D, 1978, 18, 463-467.	1.6	13
135	Quark trapping for lattice U(1) gauge fields. Physics Letters, Section B: Nuclear, Elementary Particle and High-Energy Physics, 1977, 66, 67-69.	1.5	38
136	Instantons in aU(1) lattice gauge theory: A Coulomb dipole gas. Communications in Mathematical Physics, 1977, 56, 195-212.	1.0	51
137	A Tutorial Course in Constructive Field Theory. , 1977, , 1-34.		0
138	Particles and scaling for lattice fields and Ising models. Communications in Mathematical Physics, 1976, 51, 1-13.	1.0	37
139	A convergent expansion about mean field theory. Annals of Physics, 1976, 101, 610-630.	1.0	101
140	A convergent expansion about mean field theory. Annals of Physics, 1976, 101, 631-669.	1.0	73
141	The Mathematics of Quantum Fields. , 1976, , 167-178.		0
142	An Asymptotic Perturbation Expansion for Multiphase $$ varphi _2^4 cdot $$. , 1976, , 167-175.		0
143	Phase transitions for Ï† 2 4 quantum fields. Communications in Mathematical Physics, 1975, 45, 203-216.	1.0	157
144	Two and three body equations in quantum field models. Communications in Mathematical Physics, 1975, 44, 293-320.	1.0	40

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145	The mathematics of quantum fields. Advances in Mathematics, 1975, 16, 221-232.	0.5	2
146	Three-particle structure ofÏ†4interactions and the scaling limit. Physical Review D, 1975, 11, 2816-2827.	1.6	23
147	Particles and bound states and progress toward unitarity and scaling. , 1975, , 118-127.		1
148	Ï†24quantum field model in the single-phase region: Differentiability of the mass and bounds on critical exponents. Physical Review D, 1974, 10, 536-539.	1.6	42
149	Remark on the Existence ofÏ•44. Physical Review Letters, 1974, 33, 440-442.	2.9	69
150	Measures on schwartz distribution space and applications to P(Ï†)2 field theories. Advances in Mathematics, 1974, 12, 58-83.	0.5	60
151	The Wightman Axioms and Particle Structure in the î”¯(Ï†) 2 Quantum Field Model. Annals of Mathematics, 1974, 100, 585.	2.1	157
152	Positivity of the Ï•34 Hamiltonian. Fortschritte Der Physik, 1973, 21, 327-376.	1.5	174
153	The particle structure of the weakly coupled Ï±(Ï•)2 model and other applications of high temperature expansions. , 1973, , 132-198.		33
154	The particle search in a quantum field model. Bulletin of the American Mathematical Society, 1973, 79, 979-980.	3.0	1
155	The Î»Ï†24 Quantum Field Theory without Cutoffs. IV. Perturbations of the Hamiltonian. Journal of Mathematical Physics, 1972, 13, 1568-1584.	0.5	108
156	The Yukawa2 quantum field theory without cutoffs. Journal of Functional Analysis, 1971, 7, 323-357.	0.7	36
157	Positivity and self adjointness of theP(Ï†)2 Hamiltonian. Communications in Mathematical Physics, 1971, 22, 253-258.	1.0	26
158	The energy momentum spectrum and vacuum expectation values in quantum field theory, II. Communications in Mathematical Physics, 1971, 22, 1-22.	1.0	31
159	Mathematical problems in the foundations of quantum field theory. Lecture Notes in Mathematics, 1970, , 58-67.	0.1	1
160	The Î»(Ï†4)2 quantum field theory without cutoffsquantum field theory without cutoffs: III. The physical vacuum. Acta Mathematica, 1970, 125, 203-267.	1.4	130
161	Self-adjointness of the Yukawa2 Hamiltonian. Annals of Physics, 1970, 60, 321-383.	1.0	40
162	Energyâ€Momentum Spectrum and Vacuum Expectation Values in Quantum Field Theory. Journal of Mathematical Physics, 1970, 11, 3335-3338.	0.5	25

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163	The Î»(Ï• 4) 2 Quantum Field Theory Without Cutoffs: II. The Field Operators and the Approximate Vacuum. Annals of Mathematics, 1970, 91, 362.	2.1	158
164	A Model of Yukawa Quantum Field Theory. Physical Review Letters, 1969, 23, 1362-1363.	2.9	3
165	The foundations of Quantum Field Theory. Advances in Mathematics, 1969, 3, 101-125.	0.5	12
166	Singular perturbations of selfadjoint operators. Communications on Pure and Applied Mathematics, 1969, 22, 401-414.	1.2	73
167	Infinite Renormalization of the Hamiltonian Is Necessary. Journal of Mathematical Physics, 1969, 10, 2213-2214.	0.5	22
168	Boson fields with nonlinear selfinteraction in two dimensions. Communications in Mathematical Physics, 1968, 8, 12-25.	1.0	135
169	Boson fields with the :Î¦4: Interaction in three dimensions. Communications in Mathematical Physics, 1968, 10, 1-47.	1.0	81
170	A Yukawa interaction in infinite volume. Communications in Mathematical Physics, 1968, 11, 9-18.	1.0	19
171	AÎ»Ï•4Quantum Field Theory without Cutoffs. I. Physical Review, 1968, 176, 1945-1951.	2.7	158
172	The Yukawa coupling of quantum fields in two dimensions. II. Communications in Mathematical Physics, 1967, 6, 61-76.	1.0	38
173	Yukawa coupling of quantum fields in two dimensions. I. Communications in Mathematical Physics, 1967, 5, 343-386.	1.0	72
174	The SchrÃ¶dinger equation for quantum fields with nonlinear nonlocal scattering. Communications in Mathematical Physics, 1966, 2, 271-300.	1.0	1
175	Solutions in the large for nonlinear hyperbolic systems of equations. Communications on Pure and Applied Mathematics, 1965, 18, 697-715.	1.2	1,373
176	Type I C â^— -Algebras. Annals of Mathematics, 1961, 73, 572.	2.1	245
177	Locally compact transformation groups. Transactions of the American Mathematical Society, 1961, 101, 124-138.	0.5	150