

# Rupert L Frank

## List of Publications by Year in descending order

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129  
papers

3,347  
citations

186265

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175258

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134  
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134  
docs citations

134  
times ranked

1186  
citing authors

#	ARTICLE	IF	CITATIONS
1	Uniqueness of non-linear ground states for fractional Laplacians in $\mathbb{R}^n$ . Acta Mathematica, 2013, 210, 261-318.	3.9	267
2	Uniqueness of Radial Solutions for the Fractional Laplacian. Communications on Pure and Applied Mathematics, 2016, 69, 1671-1726.	3.1	257
3	Non-linear ground state representations and sharp Hardy inequalities. Journal of Functional Analysis, 2008, 255, 3407-3430.	1.4	252
4	Hardy-Lieb-Thirring inequalities for fractional Schrödinger operators. Journal of the American Mathematical Society, 2008, 21, 925-950.	3.9	184
5	Monotonicity of a relative Rényi entropy. Journal of Mathematical Physics, 2013, 54, .	1.1	169
6	Sharp constants in several inequalities on the Heisenberg group. Annals of Mathematics, 2012, 176, 349-381.	4.2	96
7	Eigenvalue bounds for Schrödinger operators with complex potentials. Bulletin of the London Mathematical Society, 2011, 43, 745-750.	0.8	72
8	Microscopic derivation of Ginzburg-Landau theory. Journal of the American Mathematical Society, 2012, 25, 667-713.	3.9	72
9	Inversion positivity and the sharp Hardy-Littlewood-Sobolev inequality. Calculus of Variations and Partial Differential Equations, 2010, 39, 85-99.	1.7	68
10	Lieb-Thirring Inequalities for Schrödinger Operators with Complex-valued Potentials. Letters in Mathematical Physics, 2006, 77, 309-316.	1.1	65
11	Maximizers for Gagliardo-Nirenberg inequalities and related non-local problems. Mathematische Annalen, 2014, 360, 653-673.	1.4	60
12	The critical temperature for the BCS equation at weak coupling. Journal of Geometric Analysis, 2007, 17, 559-567.	1.0	54
13	The sharp constant in the Hardy-Sobolev-Maz'ya inequality in the three dimensional upper half-space. Mathematical Research Letters, 2008, 15, 613-622.	0.5	53
14	Intrinsic metrics for non-local symmetric Dirichlet forms and applications to spectral theory. Journal of Functional Analysis, 2014, 266, 4765-4808.	1.4	52
15	Eigenvalue bounds for Schrödinger operators with complex potentials. III. Transactions of the American Mathematical Society, 2018, 370, 219-240.	0.9	48
16	A New, Rearrangement-free Proof of the Sharp Hardy-Littlewood-Sobolev Inequality. , 2012, , 55-67.		47
17	Restriction theorems for orthonormal functions, Strichartz inequalities, and uniform Sobolev estimates. American Journal of Mathematics, 2017, 139, 1649-1691.	1.1	45
18	Müller's exchange-correlation energy in density-matrix-functional theory. Physical Review A, 2007, 76, .	2.5	44

#	ARTICLE	IF	CITATIONS
19	A Compactness Lemma and Its Application to the Existence of Minimizers for the Liquid Drop Model. SIAM Journal on Mathematical Analysis, 2015, 47, 4436-4450.	1.9	42
20	On Lieb-Thirring Inequalities for Schrödinger Operators with Virtual Level. Communications in Mathematical Physics, 2006, 264, 725-740.	2.2	39
21	A Simple Proof of Hardy-Lieb-Thirring Inequalities. Communications in Mathematical Physics, 2009, 290, 789-800.	2.2	39
22	An extension problem for the CR fractional Laplacian. Advances in Mathematics, 2015, 270, 97-137.	1.1	39
23	Eigenvalue bounds for Schrödinger operators with complex potentials. II. Journal of Spectral Theory, 2017, 7, 633-658.	0.8	38
24	Remainder terms in the fractional Sobolev inequality. Indiana University Mathematics Journal, 2013, 62, 1381-1397.	0.9	36
25	Strichartz inequality for orthonormal functions. Journal of the European Mathematical Society, 2014, 16, 1507-1526.	1.4	33
26	On the number of eigenvalues of Schrödinger operators with complex potentials. Journal of the London Mathematical Society, 2016, 94, 377-390.	1.0	33
27	Stability Estimates for the Lowest Eigenvalue of a Schrödinger Operator. Geometric and Functional Analysis, 2014, 24, 63-84.	1.8	30
28	A Sharp Bound on Eigenvalues of Schrödinger Operators on the Half-line with Complex-valued Potentials. , 2011, , 39-44.		30
29	Hardy-Sobolev-Maz'ya inequalities for arbitrary domains. Journal Des Mathematiques Pures Et Appliquees, 2012, 97, 39-54.	1.6	29
30	Cwikel's theorem and the CLR inequality. Journal of Spectral Theory, 2014, 4, 1-21.	0.8	28
31	Fractional Hardy-Sobolev-Maz'ya inequality for domains. Studia Mathematica, 2012, 208, 151-166.	0.7	26
32	Extended Quantum Conditional Entropy and Quantum Uncertainty Inequalities. Communications in Mathematical Physics, 2013, 323, 487-495.	2.2	26
33	A positive density analogue of the Lieb-Thirring inequality. Duke Mathematical Journal, 2013, 162, .	1.5	26
34	Stability of Relativistic Matter with Magnetic Fields for Nuclear Charges up to the Critical Value. Communications in Mathematical Physics, 2007, 275, 479-489.	2.2	25
35	Eigenvalue Bounds for Perturbations of Schrödinger Operators and Jacobi Matrices With Regular Ground States. Communications in Mathematical Physics, 2008, 282, 199-208.	2.2	25
36	Possible Lattice Distortions in the Hubbard Model for Graphene. Physical Review Letters, 2011, 107, 066801.	7.8	24

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37	Dynamics of a Strongly Coupled Polaron. Letters in Mathematical Physics, 2014, 104, 911-929.	1.1	24
38	Refined semiclassical asymptotics for fractional powers of the Laplace operator. Journal Fur Die Reine Und Angewandte Mathematik, 2016, 2016, 1-37.	0.9	24
39	Derivation of an effective evolution equation for a strongly coupled polaron. Analysis and PDE, 2017, 10, 379-422.	1.4	24
40	The Ground State Energy of Heavy Atoms: Relativistic Lowering of the Leading Energy Correction. Communications in Mathematical Physics, 2008, 278, 549-566.	2.2	21
41	Maximizers for the Steinâ€™Tomas Inequality. Geometric and Functional Analysis, 2016, 26, 1095-1134.	1.8	21
42	SINGULAR SPECTRUM FOR RADIAL TREES. Reviews in Mathematical Physics, 2009, 21, 929-945.	1.7	20
43	Sharp Fractional Hardy Inequalities in Half-Spaces. International Mathematical Series, 2010, , 161-167.	0.3	20
44	Entropy and the Uncertainty Principle. Annales Henri Poincare, 2012, 13, 1711-1717.	1.7	20
45	PÃ³lya's conjecture in the presence of a constant magnetic field. Journal of the European Mathematical Society, 2009, 11, 1365-1383.	1.4	19
46	Bipolaron and $N$ -Polaron Binding Energies. Physical Review Letters, 2010, 104, 210402.	7.8	19
47	Stability and absence of binding for multi-polaron systems. Publications Mathematiques De L'Institut Des Hautes Etudes Scientifiques, 2011, 113, 39-67.	4.3	19
48	The External Field Dependence of the BCS Critical Temperature. Communications in Mathematical Physics, 2016, 342, 189-216.	2.2	19
49	Classification of positive singular solutions to a nonlinear biharmonic equation with critical exponent. Analysis and PDE, 2019, 12, 1101-1113.	1.4	19
50	Semi-classical analysis of the Laplace operator with Robin boundary conditions. Bulletin of Mathematical Sciences, 2012, 2, 281-319.	0.7	18
51	Nonexistence of Large Nuclei in the Liquid Drop Model. Letters in Mathematical Physics, 2016, 106, 1033-1036.	1.1	17
52	Lieb-Thirring inequality for a model of particles with point interactions. Journal of Mathematical Physics, 2012, 53, 095201.	1.1	16
53	Equivalence of Sobolev Norms Involving Generalized Hardy Operators. International Mathematics Research Notices, 2021, 2021, 2284-2303.	1.0	16
54	EQUIVALENCE OF SOBOLEV INEQUALITIES AND LIEB-THIRRING INEQUALITIES. , 2010, , .		15

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55	Eigenvalue estimates for Schrödinger operators on metric trees. <i>Advances in Mathematics</i> , 2011, 226, 5165-5197.	1.1	15
56	Energy Cost to Make a Hole in the Fermi Sea. <i>Physical Review Letters</i> , 2011, 106, 150402.	7.8	15
57	Some operator and trace function convexity theorems. <i>Linear Algebra and Its Applications</i> , 2016, 490, 174-185.	0.9	15
58	Minimizers for the fractional Sobolev inequality on domains. <i>Calculus of Variations and Partial Differential Equations</i> , 2018, 57, 1.	1.7	15
59	The Ionization Conjecture in Thomas-Fermi-Dirac-von Weizsäcker Theory. <i>Communications on Pure and Applied Mathematics</i> , 2018, 71, 577-614.	3.1	15
60	A "liquid-solid" phase transition in a simple model for swarming, based on the "no flat-spots" theorem for subharmonic functions. <i>Indiana University Mathematics Journal</i> , 2018, 67, 1547-1569.	0.9	14
61	On the asymptotic number of edge states for magnetic Schrödinger operators. <i>Proceedings of the London Mathematical Society</i> , 2007, 95, 1-19.	1.3	12
62	Multi-Component Ginzburg-Landau Theory: Microscopic Derivation and Examples. <i>Annales Henri Poincaré</i> , 2016, 17, 2285-2340.	1.7	12
63	Eigenvalue Bounds for the Fractional Laplacian: A Review. , 2017, , 210-235.		12
64	Inequalities for quantum divergences and the Audenaert-Datta conjecture. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2018, 51, 483001.	2.1	12
65	TWO-TERM SPECTRAL ASYMPTOTICS FOR THE DIRICHLET LAPLACIAN ON A BOUNDED DOMAIN. , 2011, , .		12
66	Critical Lieb-Thirring bounds in gaps and the generalized Nevai conjecture for finite gap Jacobi matrices. <i>Duke Mathematical Journal</i> , 2011, 157, .	1.5	11
67	Binding of Polarons and Atoms at Threshold. <i>Communications in Mathematical Physics</i> , 2012, 313, 405-424.	2.2	11
68	EXISTENCE OF GROUND STATES FOR NEGATIVE IONS AT THE BINDING THRESHOLD. <i>Reviews in Mathematical Physics</i> , 2014, 26, 1350021.	1.7	11
69	The Ground State Energy of a Polaron in a Strong Magnetic Field. <i>Communications in Mathematical Physics</i> , 2015, 338, 1-29.	2.2	11
70	Reverse Hardy-Littlewood-Sobolev inequalities. <i>Journal Des Mathematiques Pures Et Appliquees</i> , 2019, 132, 133-165.	1.6	11
71	A non-linear adiabatic theorem for the one-dimensional Landau-Pekar equations. <i>Journal of Functional Analysis</i> , 2020, 279, 108631.	1.4	11
72	The Lieb-Thirring inequality revisited. <i>Journal of the European Mathematical Society</i> , 2021, 23, 2583-2600.	1.4	11

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73	Non-degeneracy for the critical Lane-Emden system. Proceedings of the American Mathematical Society, 2021, 149, 265-278.	0.8	11
74	Trace Class Conditions for Functions of Schrödinger Operators. Communications in Mathematical Physics, 2015, 335, 477-496.	2.2	10
75	Norms of quantum Gaussian multi-mode channels. Journal of Mathematical Physics, 2017, 58, 062204.	1.1	10
76	Sharp decay estimates for critical Dirac equations. Transactions of the American Mathematical Society, 2019, 373, 2045-2070.	0.9	10
77	Classification of solutions of an equation related to a conformal log Sobolev inequality. Advances in Mathematics, 2020, 375, 107395.	1.1	10
78	Spectral Theory for Schrödinger Operators with $\delta$ -Interactions Supported on Curves in $\mathbb{R}^3$ . Annales Henri Poincare, 2017, 18, 1305-1347.	1.7	9
79	Two-term spectral asymptotics for the Dirichlet Laplacian in a Lipschitz domain. Journal Fur Die Reine Und Angewandte Mathematik, 2020, 2020, 195-228.	0.9	9
80	Quantum Corrections to the Pekar Asymptotics of a Strongly Coupled Polaron. Communications on Pure and Applied Mathematics, 2021, 74, 544-588.	3.1	9
81	Absolute Continuity of the Spectrum for Periodically Modulated Leaky Wires in $\mathbb{R}^3$ . Annales Henri Poincare, 2007, 8, 241-263.	1.7	8
82	The spectral density of a product of spectral projections. Journal of Functional Analysis, 2015, 268, 3867-3894.	1.4	8
83	Spectral cluster bounds for orthonormal systems and oscillatory integral operators in Schatten spaces. Advances in Mathematics, 2017, 317, 157-192.	1.1	8
84	Lieb-Thirring inequalities on the half-line with critical exponent. Journal of the European Mathematical Society, 2008, 10, 739-755.	1.4	7
85	Eigenvalue estimates for magnetic Schrödinger operators in domains. Proceedings of the American Mathematical Society, 2008, 136, 4245-4255.	0.8	7
86	Number of Bound States of Schrödinger Operators with Matrix-Valued Potentials. Letters in Mathematical Physics, 2007, 82, 107-116.	1.1	6
87	Weakly coupled bound states of Pauli operators. Calculus of Variations and Partial Differential Equations, 2011, 40, 253-271.	1.7	6
88	Symmetry of Bipolaron Bound States for Small Coulomb Repulsion. Communications in Mathematical Physics, 2013, 319, 557-573.	2.2	6
89	The Maximal Excess Charge in Müller Density-Matrix-Functional Theory. Annales Henri Poincare, 2018, 19, 2839-2867.	1.7	6
90	The Nonlinear Schrödinger Equation for Orthonormal Functions II: Application to Lieb-Thirring Inequalities. Communications in Mathematical Physics, 2021, 384, 1783-1828.	2.2	6

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91	Existence and nonexistence in the liquid drop model. <i>Calculus of Variations and Partial Differential Equations</i> , 2021, 60, 1.	1.7	6
92	Inequalities between Dirichlet and Neumann Eigenvalues on the Heisenberg Group. <i>International Mathematics Research Notices</i> , 2010, 2010, 2889-2902.	1.0	5
93	Incompatibility of Time-Dependent Bogoliubov-de-Gennes and Ginzburg-Landau Equations. <i>Letters in Mathematical Physics</i> , 2016, 106, 913-923.	1.1	5
94	Endpoint resolvent estimates for compact Riemannian manifolds. <i>Journal of Functional Analysis</i> , 2017, 272, 3904-3918.	1.4	5
95	Kato smoothness and functions of perturbed self-adjoint operators. <i>Advances in Mathematics</i> , 2019, 351, 343-387.	1.1	5
96	The BCS critical temperature in a weak homogeneous magnetic field. <i>Journal of Spectral Theory</i> , 2019, 9, 1005-1062.	0.8	5
97	Sharp trace asymptotics for a class of 2D-magnetic operators. <i>Annales De L'Institut Fourier</i> , 2013, 63, 2457-2513.	0.6	5
98	Minimizers for a one-dimensional interaction energy. <i>Nonlinear Analysis: Theory, Methods &amp; Applications</i> , 2022, 216, 112691.	1.1	5
99	On the Laplacian in the halfspace with a periodic boundary condition. <i>Arkiv for Matematik</i> , 2006, 44, 277-298.	0.5	4
100	Heat Kernels of Metric Trees and Applications. <i>SIAM Journal on Mathematical Analysis</i> , 2013, 45, 1027-1046.	1.9	4
101	Schatten Class Conditions for Functions of Schrödinger Operators. <i>Annales Henri Poincare</i> , 2019, 20, 3543-3562.	1.7	4
102	Bound on the number of negative eigenvalues of two-dimensional Schrödinger operators on domains. <i>St Petersburg Mathematical Journal</i> , 2019, 30, 573-589.	0.4	4
103	Hypercontractivity of the semigroup of the fractional Laplacian on the n-sphere. <i>Journal of Functional Analysis</i> , 2021, 281, 109145.	1.4	4
104	Energy asymptotics in the Brezis-Nirenberg problem: The higher-dimensional case. <i>Mathematics in Engineering</i> , 2020, 2, 119-140.	0.9	4
105	Averaging of nonlinear Schrödinger equations with strong magnetic confinement. <i>Communications in Mathematical Sciences</i> , 2017, 15, 1933-1945.	1.0	4
106	A Note on Low Energy Scattering for Homogeneous Long-Range Potentials. <i>Annales Henri Poincare</i> , 2009, 10, 573-575.	1.7	3
107	Weak perturbations of the p-Laplacian. <i>Calculus of Variations and Partial Differential Equations</i> , 2015, 53, 781-801.	1.7	3
108	Condensation of fermion pairs in a domain. <i>Calculus of Variations and Partial Differential Equations</i> , 2017, 56, 1.	1.7	3

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109	Extremizers for the Airy–Stichartz inequality. <i>Mathematische Annalen</i> , 2018, 372, 1121-1166.	1.4	3
110	Periodic energy minimizers for a one-dimensional liquid drop model. <i>Letters in Mathematical Physics</i> , 2019, 109, 2069-2081.	1.1	3
111	Non-spherical equilibrium shapes in the liquid drop model. <i>Journal of Mathematical Physics</i> , 2019, 60, 071506.	1.1	3
112	On the error in the two-term Weyl formula for the Dirichlet Laplacian. <i>Journal of Mathematical Physics</i> , 2020, 61, .	1.1	3
113	Energy asymptotics in the three-dimensional Brezis–Nirenberg problem. <i>Calculus of Variations and Partial Differential Equations</i> , 2021, 60, 1.	1.7	3
114	Eigenvalue Estimates for the Aharonov-Bohm Operator in a Domain. , 2008, , 115-137.		3
115	Eigenvalues of Schrödinger operators with complex surface potentials. , 2017, , 245-259.		3
116	Counting eigenvalues of Schrödinger operators with fast decaying complex potentials. <i>Advances in Mathematics</i> , 2021, 397, 108115.	1.1	3
117	Eigenvalue Bounds for Schrödinger Operators with a Homogeneous Magnetic Field. <i>Letters in Mathematical Physics</i> , 2011, 97, 227-241.	1.1	2
118	Liquid Drop Model for Nuclear Matter in the Dilute Limit. <i>SIAM Journal on Mathematical Analysis</i> , 2020, 52, 1980-1999.	1.9	2
119	On the Spectrum of Partially Periodic Operators. , 2007, , 35-50.		2
120	The Stein-Tomas inequality in trace ideals. <i>Séminaire Laurent Schwartz “EDP Et Applications</i> , 0, , 1-12.	0.0	2
121	Reverse conformally invariant Sobolev inequalities on the sphere. <i>Journal of Functional Analysis</i> , 2022, 282, 109339.	1.4	2
122	BINDING, STABILITY, AND NON-BINDING OF MULTI-POLARON SYSTEMS. , 2011, , .		1
123	Singular solutions to a semilinear biharmonic equation with a general critical nonlinearity. <i>Atti Della Accademia Nazionale Dei Lincei, Classe Di Scienze Fisiche, Matematiche E Naturali, Rendiconti Lincei Matematica E Applicazioni</i> , 2019, 30, 817-846.	0.6	1
124	Inequalities for $L^p$ -Norms that Sharpen the Triangle Inequality and Complement Hanner’s Inequality. <i>Journal of Geometric Analysis</i> , 2021, 31, 4051-4073.	1.0	1
125	Inequalities that sharpen the triangle inequality for sums of $N$ functions in $L^p$ . <i>Arkiv for Matematik</i> , 2020, 58, 57-69.	0.5	1
126	Two Consequences of Davies’s Hardy Inequality. <i>Functional Analysis and Its Applications</i> , 2021, 55, 174-177.	0.4	1

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127	Which magnetic fields support a zero mode?. Journal Fur Die Reine Und Angewandte Mathematik, 2022, 2022, 1-36.	0.9	1
128	Ground state energy of large polaron systems. Journal of Mathematical Physics, 2015, 56, 021901.	1.1	0
129	The BCS Critical Temperature in a Weak External Electric Field via a Linear Two-Body Operator. Springer Proceedings in Mathematics and Statistics, 2018, , 29-62.	0.2	0