

# R Orbach

## List of Publications by Year in descending order

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121  
papers

8,808  
citations

61984

43  
h-index

40979

93  
g-index

123  
all docs

123  
docs citations

123  
times ranked

2629  
citing authors

#	ARTICLE	IF	CITATIONS
1	Density of states on fractals : « fractons ». Journal De Physique (Paris), Lettres, 1982, 43, 625-631.	2.8	1,932
2	Excitation dynamics in random one-dimensional systems. Reviews of Modern Physics, 1981, 53, 175-198.	45.6	719
3	Linear Antiferromagnetic Chain with Anisotropic Coupling. Physical Review, 1958, 112, 309-316.	2.7	451
4	Time Decay of the Remanent Magnetization in Spin-Glasses. Physical Review Letters, 1984, 52, 867-870.	7.8	406
5	Dynamics of Fractal Networks. Science, 1986, 231, 814-819.	12.6	377
6	Fracton interpretation of vibrational properties of cross-linked polymers, glasses, and irradiated quartz. Physical Review B, 1983, 28, 4615-4619.	3.2	267
7	Spin-Lattice Relaxation of S-State Ions: Mn <sup>2+</sup> in a Cubic Environment. Physical Review, 1962, 127, 1587-1592.	2.7	212
8	Zero-Field Splitting of S-State Ions. I. Point-Multipole Model. Physical Review, 1966, 149, 257-269.	2.7	210
9	H <sup>T</sup> phase diagram for spin-glasses: An experimental study of Ag:Mn. Physical Review B, 1982, 25, 6720-6729.	3.2	193
10	Phonon-fracton anharmonic interactions: The thermal conductivity of amorphous materials. Physical Review B, 1986, 34, 2726-2734.	3.2	157
11	Dynamic scaling in the Eu <sub>0.4</sub> Sr <sub>0.6</sub> S spin-glass. Physical Review B, 1984, 30, 6514-6520.	3.2	133
12	Zero-Field Splitting of S-State Ions. II. Overlap and Covalency Model. Physical Review, 1967, 155, 338-352.	2.7	127
13	Zero-Field Splitting of S-State Ions. III. Corrections to Parts I and II and Application to Distorted Cubic Crystals. Physical Review, 1968, 171, 378-388.	2.7	122
14	Thermal conductivity of amorphous materials above the plateau. Physical Review B, 1989, 39, 13465-13477.	3.2	121
15	Dynamics in spin glasses. Physical Review B, 1991, 44, 7403-7412.	3.2	117
16	Temperature Dependence of Hyperfine Coupling of S-State Ions in Cubic Environment. Physical Review, 1966, 145, 191-194.	2.7	116
17	Scattering of fractons, the Ioffe-Regel criterion, and the (4/3) conjecture. Physical Review Letters, 1987, 58, 132-135.	7.8	116
18	Scaling approach to phonon-fracton crossover. Physical Review B, 1985, 31, 2565-2567.	3.2	113

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19	Electron spin resonance of Gd in the intermetallic compounds YCu, YAg, and LaAg: Wave vector dependence of the exchange interaction. <i>Solid State Communications</i> , 1973, 12, 621-625.	1.9	105
20	Hyperfine Splitting of Er and Yb Resonances in Au: A Separation between the Atomic and Covalent Contributions to the Exchange Integral. <i>Physical Review B</i> , 1971, 4, 5-9.	3.2	103
21	Extraction of the Spin Glass Correlation Length. <i>Physical Review Letters</i> , 1999, 82, 438-441.	7.8	103
22	Irreversibility crossover in a Cu:Mn spin glass in high magnetic fields: Evidence for the Gabay-Toulouse transition. <i>Physical Review Letters</i> , 1991, 66, 2923-2926.	7.8	100
23	Percolation in the effective-medium approximation: Crossover between phonon and fracton excitations. <i>Physical Review B</i> , 1984, 29, 6645-6651.	3.2	98
24	The attenuation of high frequency phonons at low temperatures. <i>Physique Physique</i> $\text{DD}\text{D}\text{D}\text{D}^\circ$ , 1964, 1, 91-94.	2.3	92
25	Phonon-Induced Ion-Ion Coupling in Paramagnetic Salts. <i>Physical Review</i> , 1967, 158, 524-529.	2.7	87
26	Classical Diffusion in One-Dimensional Disordered Lattice. <i>Physical Review Letters</i> , 1978, 41, 185-187.	7.8	84
27	Spin-glass response time in Ag:Mn: Exponential temperature dependence. <i>Physical Review Letters</i> , 1985, 55, 111-113.	7.8	79
28	Spin-Lattice Relaxation in the $E_2$ State of $d_3$ Ions in Corundum. <i>Physical Review</i> , 1965, 139, A314-A321.	2.7	74
29	Electron-Spin Resonance of Rare Earths in Aluminum. <i>Physical Review B</i> , 1973, 7, 1-12.	3.2	74
30	Relaxation and nonradiative decay in disordered systems. I. One-fracton emission. <i>Physical Review B</i> , 1985, 32, 6447-6455.	3.2	63
31	Spin-glass dynamics. <i>Physica A: Statistical Mechanics and Its Applications</i> , 1992, 185, 278-294.	2.6	57
32	Spectral diffusion in a one-dimensional percolation model. <i>Physical Review B</i> , 1978, 17, 4311-4314.	3.2	56
33	Excitation spectrum for vibrations on a percolating network: Effective-medium approximation. <i>Physical Review B</i> , 1984, 29, 4588-4594.	3.2	55
34	Exchange-narrowed anisotropy contribution to the EPR width and shift in the Ag-Mn spin-glass. <i>Physical Review B</i> , 1984, 29, 278-287.	3.2	54
35	Antiferromagnetic Magnon Dispersion Law and Bloch Wall Energies in Ferromagnets and Antiferromagnets. <i>Physical Review</i> , 1959, 115, 1181-1184.	2.7	53
36	Crystalline-Field Effects in the Electron-Spin Resonance of Rare Earths in the Noble Metals. <i>Physical Review B</i> , 1973, 8, 3563-3568.	3.2	52

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37	Temperature dependence of the response time of dilute metallic spin glasses. <i>Physical Review B</i> , 1986, 34, 1719-1727.	3.2	51
38	Time dependent critical field transition line in an insulating spin-glass. <i>Journal De Physique (Paris), Lettres</i> , 1983, 44, 47-52.	2.8	50
39	Exchange and hyperfine interactions in Ag:Mn dilute alloys. <i>Physical Review B</i> , 1975, 11, 3546-3558.	3.2	48
40	Reversibility and time dependence of the magnetization in Ag:Mn and Cu:Mn spin glasses. <i>Journal of Applied Physics</i> , 1981, 52, 1771-1772.	2.5	47
41	Fracton contribution to the optical linewidth in glasses. <i>Physical Review B</i> , 1984, 29, 2300-2301.	3.2	46
42	Dynamics of fractal structures. <i>Journal of Statistical Physics</i> , 1984, 36, 735-748.	1.2	46
43	Nonlinear Phonon Generation. <i>Physical Review Letters</i> , 1966, 16, 15-16.	7.8	44
44	Frequency-dependent charge transport in a one-dimensional disordered metal. <i>Physical Review B</i> , 1981, 24, 7474-7477.	3.2	42
45	Relaxation and nonradiative decay in disordered systems. II. Two-fracton inelastic scattering. <i>Physical Review B</i> , 1986, 33, 3935-3946.	3.2	40
46	Resolved "Fine Structure" in the Magnetic Resonance of a Localized Moment in a Metal. <i>Physical Review Letters</i> , 1971, 27, 582-586.	7.8	38
47	Role of initial conditions in spin-glass aging experiments. <i>Physical Review B</i> , 2003, 67, .	3.2	37
48	Vibrational transport in disordered systems. <i>The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties</i> , 1992, 65, 289-301.	0.6	35
49	Spin Glass Dynamics under a Change in Magnetic Field. <i>Physical Review Letters</i> , 1996, 77, 4648-4651.	7.8	35
50	Paramagnetic Resonance of Erbium in a Single Crystal of Magnesium. <i>Physical Review Letters</i> , 1967, 19, 1133-1136.	7.8	33
51	Energy gap and thermal properties of selfsimilar structures: An application to epoxy resin. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1983, 98, 357-360.	2.1	33
52	Experimental search for the spin-glass transition in Eu <sub>0.4</sub> Sr <sub>0.6</sub> S: A dynamic scaling analysis. <i>Journal of Magnetism and Magnetic Materials</i> , 1986, 54-57, 1-5.	2.3	32
53	Electron Spin Lattice Relaxation. , 1972, , 121-216.		32
54	Evidence for differing short- and long-time decay behavior in the dynamic response of the insulating spin-glass Eu <sub>0.4</sub> Sr <sub>0.6</sub> S. <i>Physical Review B</i> , 1988, 37, 4708-4713.	3.2	31

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55	Inelastic extended-electronâ€“localized-vibrational-state scattering rate. Physical Review B, 1985, 32, 8007-8012.	3.2	30
56	Effect of magnetic fields on the relaxation of the thermoremanent magnetization in spin glasses. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1995, 71, 479-488.	0.6	30
57	Hyperfine Splitting of a Localized Moment in a Metal. Physical Review B, 1970, 2, 2298-2301.	3.2	28
58	Magnons and factons in diluted antiferromagnets (invited). Journal of Applied Physics, 1987, 61, 3689-3691.	2.5	28
59	Anisotropic Behavior of Dilute Au:Dy Alloys: Observation of the <sup>8</sup> (Quartet) Resonance. Physical Review Letters, 1972, 28, 490-493.	7.8	27
60	Critical scaling of the EPR linewidth in the Ag-Mn spin glass. Physical Review B, 1985, 31, 4557-4561.	3.2	27
61	Relaxation rate distribution and decay profile : two fracton relaxation. Journal De Physique (Paris), Lettres, 1985, 46, 555-560.	2.8	26
62	Temperature and frequency dependence of the sound velocity in vitreous silica due to scattering off localized modes. Physical Review B, 1990, 41, 3153-3157.	3.2	25
63	Hyperfine Splitting in a Metal of a Localized Moment. Journal of Applied Physics, 1971, 42, 1659-1665.	2.5	23
64	Phonon breakdown. IEEE Transactions on Sonics and Ultrasonics, 1967, 14, 140-141.	0.9	22
65	“Super” Transferred Hyperfine Interactions for Fe <sup>3+</sup> Salts. Journal of Applied Physics, 1967, 38, 1072-1073.	2.5	21
66	Electron-Spin Resonance of Rare-Earth Ions in the Actinide Cubic Metal Th. Physical Review B, 1972, 5, 1711-1716.	3.2	21
67	Frequency dependence of the conductivity in presence of an electric field in one dimension: Weak-disorder limit. Physical Review B, 1983, 27, 4694-4701.	3.2	20
68	Fracton dynamics. Physica D: Nonlinear Phenomena, 1989, 38, 266-272.	2.8	20
69	Relaxation rate distribution and decay profile : one fracton emission. Journal De Physique (Paris), Lettres, 1985, 46, 549-554.	2.8	20
70	Hyperfine splitting in the electron spin resonance of Dy and Er in the transition metal-Rh. Physics Letters, Section A: General, Atomic and Solid State Physics, 1971, 37, 361-363.	2.1	19
71	Magnetic resonance of thin-film single-crystal epitaxial dilute alloys. Physical Review B, 1975, 12, 5068-5074.	3.2	19
72	Time decay of the thermoremanent magnetization in the insulating spin glass Eu <sub>0.4</sub> Sr <sub>0.6</sub> S. Journal of Magnetism and Magnetic Materials, 1986, 54-57, 211-212.	2.3	19

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73	Effective-medium approximation for the dynamical excitations of percolating antiferromagnets. <i>Physical Review B</i> , 1989, 39, 9353-9359.	3.2	19
74	Phonon localization and transport in disordered systems. <i>Journal of Non-Crystalline Solids</i> , 1993, 164-166, 917-922.	3.1	19
75	Anharmonicity and thermal transport in network glasses. <i>Europhysics Letters</i> , 1999, 47, 468-473.	2.0	19
76	Cross-over from phonons to fractons. <i>The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties</i> , 1987, 56, 949-955.	0.6	18
77	Second-Order Nonradiative Processes in $\text{CaF}_2:\text{Sm}^{2+}$ . <i>Physical Review</i> , 1964, 133, A34-A36.	2.7	17
78	Spin waves in a percolating antiferromagnet. <i>Physical Review B</i> , 1984, 30, 2760-2764.	3.2	17
79	Relaxation and nonradiative decay in disordered systems. III. Statistical character of Raman (two-quanta) spin-lattice relaxation. <i>Physical Review B</i> , 1987, 35, 1166-1173.	3.2	17
80	Relaxation and Energy Transfer. , 1975, , 355-399.		17
81	Magnetic Resonance of $\text{Au:Er}^{167}$ and $\text{Au:Yb}^{171}$ . <i>Physical Review B</i> , 1972, 5, 2735-2736.	3.2	15
82	Phonon-Induced Corrections to the Van Vleck Temperature-Independent Susceptibility. <i>Physical Review</i> , 1966, 143, 168-171.	2.7	14
83	On the scattering of phonons by spins at low temperatures theoretical. <i>Philosophical Magazine and Journal</i> , 1960, 5, 1303-1307.	1.7	13
84	Spin-glass response near the glass temperature. <i>Physical Review B</i> , 1986, 33, 6531-6532.	3.2	13
85	Time-dependent spectral transport: A Monte Carlo study. <i>Physical Review B</i> , 1978, 18, 3048-3053.	3.2	12
86	ESR and spin-lattice relaxation of $\text{Nd}^{3+}$ in a metallic host: $\text{LaRh}_2$ . <i>Physical Review B</i> , 1978, 18, 1016-1019.	3.2	12
87	Thermoremanent magnetization as a probe of the field-quenched states in spin glasses. <i>Physical Review B</i> , 1995, 52, 3479-3483.	3.2	12
88	Frequency-Dependent Conductivity of Quasi-One-Dimensional Electronic Conductors. <i>Molecular Crystals and Liquid Crystals</i> , 1982, 85, 121-128.	0.8	11
89	Effect of the thermal quench on aging in spin glasses. <i>Physical Review B</i> , 2013, 88, .	3.2	11
90	Electron spin resonance of Dy and Er in Ir. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1972, 40, 269-271.	2.1	10

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91	Transport and vibrational lifetimes in amorphous structures. <i>Physica B: Condensed Matter</i> , 1996, 219-220, 231-234.	2.7	10
92	Chamberlin, Mozurkewich, and Orbach Respond. <i>Physical Review Letters</i> , 1984, 53, 1025-1025.	7.8	9
93	Approach to equilibrium of a spin-glass. <i>Physical Review B</i> , 1990, 41, 4465-4468.	3.2	9
94	Temperature dependence of barrier heights in spin glasses. <i>Journal of Applied Physics</i> , 1991, 69, 5234-5236.	2.5	8
95	Magnetic field dependence of $T_g$ in bulk Cu:Mn and Cu:Mn/Cu multilayer systems. <i>Journal of Applied Physics</i> , 1991, 69, 5240-5242.	2.5	8
96	From linear to nonlinear response in spin glasses: Importance of mean-field-theory predictions. <i>Physical Review B</i> , 2002, 66, .	3.2	8
97	EPR study of cold-worked dilute gold-erbium alloys. <i>Journal of Applied Physics</i> , 1979, 50, 7735.	2.5	7
98	Frequency-dependent hopping conductivity in disordered networks in the presence of a biased electric field. <i>Physical Review B</i> , 1985, 31, 6337-6344.	3.2	7
99	Temperature dependence of the magnetization in high fields in the diluted antiferromagnet Fe <sub>46</sub> Zn <sub>54</sub> F <sub>2</sub> . <i>Journal of Applied Physics</i> , 1991, 69, 5249-5251.	2.5	7
100	Barrier heights versus temperature in spin glasses. <i>Journal of Magnetism and Magnetic Materials</i> , 1992, 104-107, 1617-1618.	2.3	6
101	Spin-glass dynamics and the barrier model: Extraction of the Parisi physical order parameter. <i>The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties</i> , 1998, 77, 231-238.	0.6	6
102	Frequency dependence of the conductivity for variable range rate hopping in 1-D. <i>Physica B: Physics of Condensed Matter &amp; C: Atomic, Molecular and Plasma Physics, Optics</i> , 1981, 107, 675-676.	0.9	5
103	Time dependent response for the ferromagnetic and spin-glass phase in an insulating re-entrant material: Eu <sub>0.54</sub> Sr <sub>0.46</sub> S. <i>Journal of Magnetism and Magnetic Materials</i> , 1986, 54-57, 177-178.	2.3	5
104	The phonon maser. <i>Physics Letters</i> , 1965, 15, 43-45.	2.1	3
105	Thermal Conduction due to Hopping Processes in Amorphous Solids. <i>Modern Problems in Condensed Matter Sciences</i> , 1991, 28, 125-141.	0.1	3
106	Optical energy storage and retrieval. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1977, 62, 55-56.	2.1	2
107	Evidence for the $d \sim T^m$ Almeida-Thouless transition line in a dilute metallic spin glass from time response measurements near $T_g$ . <i>Journal of Applied Physics</i> , 1987, 61, 4089-4091.	2.5	2
108	NMR dynamics in disordered magnets. <i>Hyperfine Interactions</i> , 1989, 49, 325-333.	0.5	2

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109	The Thermal Conductivity of Amorphous Insulators. Springer Series in Solid-state Sciences, 1986, , 15-19.	0.3	2
110	Fracton Interpretation of Thermal Conductivity of Amorphous Materials. , 1987, , 243-249.		2
111	The H-T phase diagram for the spin-glass Ag : Mn. Journal of Magnetism and Magnetic Materials, 1983, 31-34, 1423-1424.	2.3	1
112	Relations between the Parisi physical order parameter and ac magnetic susceptibility in spin glasses. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1998, 77, 221-229.	0.6	1
113	Dynamics of Tenuous Structures. Springer Proceedings in Physics, 1989, , 288-296.	0.2	1
114	Scaling Theories for Anomalous Dynamics on Fractals: Fractons. , 1987, , 233-241.		1
115	Antiferromagnetic Magnon Dispersion Law and Bloch Wall Energies in Ferromagnets and Antiferromagnets. Journal of Applied Physics, 1959, 30, S233-S234.	2.5	0
116	Superexchange. , 1973, , .		0
117	Dynamical Excitations of Site-Diluted Magnets. Springer Proceedings in Physics, 1988, , 212-220.	0.2	0
118	Dynamics of Nonlinear Tenuous Structures. Springer Series in Synergetics, 1989, , 183-188.	0.4	0
119	Excitations of/on Fractal Networks. , 1991, , 335-359.		0
120	Frequency Dependent Electrical Conductivity of Mixed (Na+, Ba2+)Î²-alumina. , 1993, , 383-391.		0
121	DYNAMICS OF TENUOUS STRUCIURES: LOCALIZED CHARACTER OF VIBRATIONAL EXCITATIONS. , 1989, , 87-104.		0