R Orbach

List of Publications by Year
in descending order

121 papers	8,808 citations	61857 43 h-index	40881 93 g-index
123 all docs	123 docs citations	123 times ranked	2629 citing authors

#	Article	IF	Citations
1	Density of states on fractals : Â« fractons Â». 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.	16.4	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.	2.9	406
5	Dynamics of Fractal Networks. Science, 1986, 231, 814-819.	6.0	377
6	Fracton interpretation of vibrational properties of cross-linked polymers, glasses, and irradiated quartz. Physical Review B, 1983, 28, 4615-4619.	1.1	267
7	Spin-Lattice Relaxation ofS-State Ions:Mn2+in a Cubic Environment. Physical Review, 1962, 127, 1587-1592.	2.7	212
8	Zero-Field Splitting ofS-State Ions. I. Point-Multipole Model. Physical Review, 1966, 149, 257-269.	2.7	210
9	Hâ”Tphase diagram for spin-glasses: An experimental study of Ag:Mn. Physical Review B, 1982, 25, 6720-6729.	1.1	193
10	Phonon-fracton anharmonic interactions: The thermal conductivity of amorphous materials. Physical Review B, 1986, 34, 2726-2734.	1.1	157
11	Dynamic scaling in theEu0.4Sr0.6S spin-glass. Physical Review B, 1984, 30, 6514-6520.	1.1	133
12	Zero-Field Splitting ofS-State Ions. II. Overlap and Covalency Model. Physical Review, 1967, 155, 338-352.	2.7	127
13	Zero-Field Splitting ofS-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.	1.1	121
15	Dynamics in spin glasses. Physical Review B, 1991, 44, 7403-7412.	1.1	117
16	Temperature Dependence of Hyperfine Coupling ofS-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.	2.9	116
18	Scaling approach to phonon-fracton crossover. Physical Review B, 1985, 31, 2565-2567.	1.1	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. Solid State Communications, 1973, 12, 621-625.	0.9	105
20	Hyperfine Splitting of Er and Yb Resonances in Au: A Separation between the Atomic and Covalent Contributions to the Exchange Integral. Physical Review B, 1971, 4, 5-9.	1.1	103
21	Extraction of the Spin Glass Correlation Length. Physical Review Letters, 1999, 82, 438-441.	2.9	103
22	Irreversibility crossover in a Cu:Mn spin glass in high magnetic fields: Evidence for the Gabay-Toulouse transition. Physical Review Letters, 1991, 66, 2923-2926.	2.9	100
23	Percolation in the effective-medium approximation: Crossover between phonon and fracton excitations. Physical Review B, 1984, 29, 6645-6651.	1.1	98
24	The attenuation of high frequency phonons at low temperatures. Physics Physique ÐÐ¸Ð·Ð¸ÐºÐ°, 1964, 1, 91-94.	2.3	92
25	Phonon-Induced Ion-Ion Coupling in Paramagnetic Salts. Physical Review, 1967, 158, 524-529.	2.7	87
26	Classical Diffusion in One-Dimensional Disordered Lattice. Physical Review Letters, 1978, 41, 185-187.	2.9	84
27	Spin-glass response time in Ag:Mn: Exponential temperature dependence. Physical Review Letters, 1985, 55, 111-113.	2.9	79
28	Spin-Lattice Relaxation in theEÂ¯(E2)State ofd3Ions in Corundum. Physical Review, 1965, 139, A314-A321.	2.7	74
29	Electron-Spin Resonance of Rare Earths in Aluminum. Physical Review B, 1973, 7, 1-12.	1.1	74
30	Relaxation and nonradiative decay in disordered systems. I. One-fracton emission. Physical Review B, 1985, 32, 6447-6455.	1.1	63
31	Spin-glass dynamics. Physica A: Statistical Mechanics and Its Applications, 1992, 185, 278-294.	1.2	57
32	Spectral diffusion in a one-dimensional percolation model. Physical Review B, 1978, 17, 4311-4314.	1.1	56
33	Excitation spectrum for vibrations on a percolating network: Effective-medium approximation. Physical Review B, 1984, 29, 4588-4594.	1.1	55
34	Exchange-narrowed anisotropy contribution to the EPR width and shift in the Ag-Mn spin-glass. Physical Review B, 1984, 29, 278-287.	1.1	54
35	Antiferromagnetic Magnon Dispersion Law and Bloch Wall Energies in Ferromagnets and Antiferromagnets. Physical Review, 1959, 115, 1181-1184.	2.7	53
36	Crystalline-Field Effects in the Electron-Spin Resonance of Rare Earths in the Noble Metals. Physical Review B, 1973, 8, 3563-3568.	1.1	52

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37	Temperature dependence of the response time of dilute metallic spin glasses. Physical Review B, 1986, 34, 1719-1727.	1.1	51
38	Time dependent critical field transition line in an insulating spin-glass. Journal De Physique (Paris), Lettres, 1983, 44, 47-52.	2.8	50
39	Exchange and hyperfine interactions in Ag:Mn dilute alloys. Physical Review B, 1975, 11, 3546-3558.	1.1	48
40	Reversibility and time dependence of the magnetization in Ag:Mn and Cu:Mn spin glasses. Journal of Applied Physics, 1981, 52, 1771-1772.	1.1	47
41	Fracton contribution to the optical linewidth in glasses. Physical Review B, 1984, 29, 2300-2301.	1.1	46
42	Dynamics of fractal structures. Journal of Statistical Physics, 1984, 36, 735-748.	0.5	46
43	Nonlinear Phonon Generation. Physical Review Letters, 1966, 16, 15-16.	2.9	44
44	Frequency-dependent charge transport in a one-dimensional disordered metal. Physical Review B, 1981, 24, 7474-7477.	1.1	42
45	Relaxation and nonradiative decay in disordered systems. II. Two-fracton inelastic scattering. Physical Review B, 1986, 33, 3935-3946.	1.1	40
46	Resolved "Fine Structure" in the Magnetic Resonance of a Localized Moment in a Metal. Physical Review Letters, 1971, 27, 582-586.	2.9	38
47	Role of initial conditions in spin-glass aging experiments. Physical Review B, 2003, 67, .	1.1	37
48	Vibrational transport in disordered systems. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1992, 65, 289-301.	0.6	35
49	Spin Glass Dynamics under a Change in Magnetic Field. Physical Review Letters, 1996, 77, 4648-4651.	2.9	35
50	Paramagnetic Resonance of Erbium in a Single Crystal of Magnesium. Physical Review Letters, 1967, 19, 1133-1136.	2.9	33
51	Energy gap and thermal properties of selfsimilar structures: An application to epoxy resin. Physics Letters, Section A: General, Atomic and Solid State Physics, 1983, 98, 357-360.	0.9	33
52	Experimental search for the spin-glass transition in Eu0.4Sr0.6S: A dynamic scaling analysis. Journal of Magnetism and Magnetic Materials, 1986, 54-57, 1-5.	1.0	32
53	Electron Spinâ€"Lattice Relaxation. , 1972, , 121-216.		32
54	Evidence for differing short- and long-time decay behavior in the dynamic response of the insulating spin-glassEu0.4Sr0.6S. Physical Review B, 1988, 37, 4708-4713.	1.1	31

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55	Inelastic extended-electronâ€“localized-vibrational-state scattering rate. Physical Review B, 1985, 32, 8007-8012.	1.1	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.	1.1	28
58	Magnons and factons in diluted antiferromagnets (invited). Journal of Applied Physics, 1987, 61, 3689-3691.	1.1	28
59	Anisotropic Behavior of Dilute Au:Dy Alloys: Observation of theÎ“8(Quartet) Resonance. Physical Review Letters, 1972, 28, 490-493.	2.9	27
60	Critical scaling of the EPR linewidth in the Ag-Mn spin glass. Physical Review B, 1985, 31, 4557-4561.	1.1	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.	1.1	25
63	Hyperfine Splitting in a Metal of a Localized Moment. Journal of Applied Physics, 1971, 42, 1659-1665.	1.1	23
64	Phonon breakdown. IEEE Transactions on Sonics and Ultrasonics, 1967, 14, 140-141.	1.0	22
65	``Super'' Transferred Hyperfine Interactions for Fe3+Salts. Journal of Applied Physics, 1967, 38, 1072-1073.	1.1	21
66	Electron-Spin Resonance of Rare-Earth Ions in the Actinide Cubic Metal Th. Physical Review B, 1972, 5, 1711-1716.	1.1	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.	1.1	20
68	Fracton dynamics. Physica D: Nonlinear Phenomena, 1989, 38, 266-272.	1.3	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.	0.9	19
71	Magnetic resonance of thin-film single-crystal epitaxial dilute alloys. Physical Review B, 1975, 12, 5068-5074.	1.1	19
72	Time decay of the thermoremanent magnetization in the insulating spin glass Eu0.4Sr0.6S. Journal of Magnetism and Magnetic Materials, 1986, 54-57, 211-212.	1.0	19

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73	Effective-medium approximation for the dynamical excitations of percolating antiferromagnets. Physical Review B, 1989, 39, 9353-9359.	1.1	19
74	Phonon localization and transport in disordered systems. Journal of Non-Crystalline Solids, 1993, 164-166, 917-922.	1.5	19
75	Anharmonicity and thermal transport in network glasses. Europhysics Letters, 1999, 47, 468-473.	0.7	19
76	Cross-over from phonons to fractons. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1987, 56, 949-955.	0.6	18
77	Second-Order Nonradiative Processes in CaF2:Sm2+. Physical Review, 1964, 133, A34-A36.	2.7	17
78	Spin waves in a percolating antiferromagnet. Physical Review B, 1984, 30, 2760-2764.	1.1	17
79	Relaxation and nonradiative decay in disordered systems. III. Statistical character of Raman (two-quanta) spin-lattice relaxation. Physical Review B, 1987, 35, 1166-1173.	1.1	17
80	Relaxation and Energy Transfer. , 1975, , 355-399.		17
81	Magnetic Resonance of Au:Er167and Au:Yb171. Physical Review B, 1972, 5, 2735-2736.	1.1	15
82	Phonon-Induced Corrections to the Van Vleck Temperature-Independent Susceptibility. Physical Review, 1966, 143, 168-171.	2.7	14
83	On the scattering of phonons by spins at low temperatures theoretical. Philosophical Magazine and Journal, 1960, 5, 1303-1307.	1.8	13
84	Spin-glass response near the glass temperature. Physical Review B, 1986, 33, 6531-6532.	1.1	13
85	Time-dependent spectral transport: A Monte Carlo study. Physical Review B, 1978, 18, 3048-3053.	1.1	12
86	ESR and spin-lattice relaxation ofNd3+in a metallic host: LaRh2. Physical Review B, 1978, 18, 1016-1019.	1.1	12
87	Thermoremanent magnetization as a probe of the field-quenched states in spin glasses. Physical Review B, 1995, 52, 3479-3483.	1.1	12
88	Frequency-Dependent Conductivity of Quasi-One-Dimensional Electronic Conductors. Molecular Crystals and Liquid Crystals, 1982, 85, 121-128.	0.9	11
89	Effect of the thermal quench on aging in spin glasses. Physical Review B, 2013, 88, .	1.1	11
90	Electron spin resonance of Dy and Er in Ir. Physics Letters, Section A: General, Atomic and Solid State Physics, 1972, 40, 269-271.	0.9	10

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91	Transport and vibrational lifetimes in amorphous structures. Physica B: Condensed Matter, 1996, 219-220, 231-234.	1.3	10
92	Chamberlin, Mozurkewich, and Orbach Respond. Physical Review Letters, 1984, 53, 1025-1025.	2.9	9
93	Approach to equilibrium of a spin-glass. Physical Review B, 1990, 41, 4465-4468.	1.1	9
94	Temperature dependence of barrier heights in spin glasses. Journal of Applied Physics, 1991, 69, 5234-5236.	1.1	8
95	Magneticâ€field dependence ofTgin bulk Cu:Mn and Cu:Mn/Cu multilayer systems. Journal of Applied Physics, 1991, 69, 5240-5242.	1.1	8
96	From linear to nonlinear response in spin glasses: Importance of mean-field-theory predictions. Physical Review B, 2002, 66, .	1.1	8
97	EPR study of cold-worked dilute gold-erbium alloys. Journal of Applied Physics, 1979, 50, 7735.	1.1	7
98	Frequency-dependent hopping conductivity in disordered networks in the presence of a biased electric field. Physical Review B, 1985, 31, 6337-6344.	1.1	7
99	Temperature dependence of the magnetization in high fields in the diluted antiferromagnet Fe46%Zn54%F2. Journal of Applied Physics, 1991, 69, 5249-5251.	1.1	7
100	Barrier heights versus temperature in spin glasses. Journal of Magnetism and Magnetic Materials, 1992, 104-107, 1617-1618.	1.0	6
101	Spin-glass dynamics and the barrier model: Extraction of the Parisi physical order parameter. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 1998, 77, 231-238.	0.6	6
102	Frequency dependence of the conductivity for variable range rate hopping in 1-D. Physica B: Physics of Condensed Matter & C: Atomic, Molecular and Plasma Physics, Optics, 1981, 107, 675-676.	0.9	5
103	Time dependent response for the ferromagnetic and spin-glass phase in an insulating re-entrant material: Eu0.54Sr0.46S. Journal of Magnetism and Magnetic Materials, 1986, 54-57, 177-178.	1.0	5
104	The phonon maser. Physics Letters, 1965, 15, 43-45.	2.2	3
105	Thermal Conduction due to Hopping Processes in Amorphous Solids. Modern Problems in Condensed Matter Sciences, 1991, 28, 125-141.	0.1	3
106	Optical energy storage and retrieval. Physics Letters, Section A: General, Atomic and Solid State Physics, 1977, 62, 55-56.	0.9	2
107	Evidence for the dâ€™Almeidaâ€“Thouless transition line in a dilute metallic spin glass from time response measurements nearTg. Journal of Applied Physics, 1987, 61, 4089-4091.	1.1	2
108	NMR dynamics in disordered magnets. Hyperfine Interactions, 1989, 49, 325-333.	0.2	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.	1.0	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.	0.1	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.	1.1	0
116	Superexchange. , 1973, , .		0
117	Dynamical Excitations of Site-Diluted Magnets. Springer Proceedings in Physics, 1988, , 212-220.	0.1	0
118	Dynamics of Nonlinear Tenuous Structures. Springer Series in Synergetics, 1989, , 183-188.	0.2	0
119	Excitations of/on Fractal Networks. , 1991, , 335-359.		0
120	Frequency Dependent Electrical Conductivity of Mixed (Na+, Ba2+)Î²â€³-alumina. , 1993, , 383-391.		0
121	DYNAMICS OF TENUOUS STRUCIURES: LOCALIZED CHARACTER OF VIBRATIONAL EXCITATIONS. , 1989, , 87-104.		0