P Boolchand

List of Publications by Year
in descending order

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112 papers	5,096 citations	71102 41 h-index	91884 69 g-index
114 all docs	114 docs citations	114 times ranked	1886 citing authors

#	Article	IF	Citations
1	Direct Evidence for Stiffness Threshold in Chalcogenide Glasses. Physical Review Letters, 1997, 78, 4422-4425.	7.8	277
2	Rigidity transitions and molecular structure ofAsxSe1â^’xglasses. Physical Review B, 2000, 62, R9228-R9231.	3.2	188
3	Rigidity transitions in binary Geâ€“Se glasses and the intermediate phase. Journal of Non-Crystalline Solids, 2001, 293-295, 348-356.	3.1	181
4	Stiffness transitions inSixSe1â^’xglasses from Raman scattering and temperature-modulated differential scanning calorimetry. Physical Review B, 2000, 61, 15061-15076.	3.2	173
5	Mobile silver ions and glass formation in solid electrolytes. Nature, 2001, 410, 1070-1073.	27.8	164
6	Dual Chemical Role of Ag as an Additive in Chalcogenide Glasses. Physical Review Letters, 1999, 83, 3848-3851.	7.8	152
7	Vibrational densities of states and network rigidity in chalcogenide glasses. Physical Review B, 1991, 44, 94-100.	3.2	150
8	Self-organization and the physics of glassy networks. Philosophical Magazine, 2005, 85, 3823-3838.	1.6	149
9	Rigidity Percolation and Molecular Clustering in Network Glasses. Physical Review Letters, 1986, 56, 2493-2496.	7.8	132
10	Unexpected Behavior of Copper in Modified Ferrites during High Temperature WGS Reactionâ€"Aspects of Fe³⁺ â†" Fe²⁺ Redox Chemistry from MÃ¶ssbauer and XPS Studies. Journal of Physical Chemistry C, 2012, 116, 11019-11031.	3.1	131
11	Structure of GeSsub2glass: Spectroscopic evidence for broken chemical order. Physical Review B, 1986, 33, 5421-5434.	3.2	123
12	Pressure Raman effects and internal stress in network glasses. Physical Review B, 2005, 71, .	3.2	121
13	Structural origin of broken chemical order in a GeSe2glass. Physical Review B, 1982, 25, 2975-2978.	3.2	114
14	Glass-forming tendency, percolation of rigidity, and onefold-coordinated atoms in covalent networks. Physical Review B, 1994, 50, 10366-10368.	3.2	107
15	Glass structure, rigidity transitions and the intermediate phase in the Geâ€“Asâ€“Se ternary. Europhysics Letters, 2000, 52, 633-639.	2.0	107
16	Ageing, fragility and the reversibility window in bulk alloy glasses. Journal of Physics Condensed Matter, 2005, 17, L1-L7.	1.8	106
17	Direct Evidence for Intrinsically Broken Chemical Ordering in Melt-Quenched Glasses. Physical Review Letters, 1981, 46, 1689-1692.	7.8	95
18	The structural origin of broken chemical order in GeSe₂ glass. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 2000, 80, 1757-1772.	0.6	92

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19	Intermediate phase, network demixing, boson and floppy modes, and compositional trends in glass transition temperatures of binary<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>As</mml:mtext></mml:mrow><mml:mi>x</mml:mi></mml:msub Physical Review B, 2008, 78, .	3.2	88
20	Intrinsic nanoscale phase separation of bulk As2S3glass. Philosophical Magazine, 2003, 83, 2941-2953.	1.6	87
21	Thermally reversing window and stiffness transitions in chalcogenide glasses. Solid State Communications, 1999, 111, 619-624.	1.9	80
22	Broken chemical order and phase separation in GexSe1â˘x glasses. Solid State Communications, 1983, 45, 183-185.	1.9	75
23	The Central Role of Broken Bond-Bending Constraints in Promoting Glass Formation in the Oxides. Science, 1994, 266, 1355-1357.	12.6	73
24	Direct evidence of rigidity loss and self-organization in silicate glasses. Journal of Physics Condensed Matter, 2005, 17, 4889-4896.	1.8	70
25	Sharp Rigid to Floppy Phase Transition Induced by Dangling Ends in a Network Glass. Physical Review Letters, 2001, 87, .	7.8	64
26	Light-Induced Giant Softening of Network Glasses Observed near the Mean-Field Rigidity Transition. Physical Review Letters, 2004, 92, 245501.	7.8	63
27	Universal structural phase transition in network glasses. Physical Review B, 1985, 31, 981-991.	3.2	62
28	Evidence for nanoscale phase separation of stressedâ€"rigid glasses. Journal of Physics Condensed Matter, 2003, 15, S2397-S2411.	1.8	61
29	Fast-Ion Conduction and Flexibility of Glassy Networks. Physical Review Letters, 2007, 98, 195501.	7.8	59
30	Influence of one-fold-coordinated atoms on mechanical properties of covalent networks. Physical Review B, 1996, 53, 11488-11494.	3.2	56
31	Onset of rigidity inSe1â˘xGexglasses: Ultrasonic elastic moduli. Physical Review B, 1989, 39, 8702-8706.	3.2	55
32	Superstrong nature of covalently bonded glass-forming liquids at select compositions. Journal of Chemical Physics, 2013, 139, 164511.	3.0	53
33	Vibrational thresholds in covalent networks. Solid State Ionics, 1990, 39, 81-89.	2.7	49
34	Universal structural phase transition in network glasses. Solid State Communications, 1983, 47, 199-202.	1.9	48
35	Variation of glass transition temperature, Tg, with average coordination number, ã€‰mã€ˆ, in network glasses: evidence of a threshold behavior in the slope |dTg/dã€‰mã€ˆ| at the rigidity percolation threshold (ã€‰mã€ˆ = 2.4). Journal of Non-Crystalline Solids, 1992, 151, 149-154.	3.1	46
36	Abrupt boundaries of intermediate phases and space filling in oxide glasses. Journal of Physics Condensed Matter, 2008, 20, 202101.	1.8	46

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37	Long term aging of selenide glasses: evidence of sub-<i>T</i>_gendotherms and pre-<i>T</i>_gexotherms. Journal of Physics Condensed Matter, 2010, 22, 065104.	1.8	46
38	Intermediate Phases, structural variance and network demixing in chalcogenides: The unusual case of group V sulfides. Journal of Non-Crystalline Solids, 2009, 355, 1773-1785.	3.1	44
39	Meeting experimental challenges to physics of network glasses: Assessing the role of sample homogeneity. Solid State Communications, 2011, 151, 1851-1855.	1.9	44
40	The self-organized phase of bulk P x Se 1 âˆ’ x glasses. Europhysics Letters, 2003, 62, 49-55.	2.0	42
41	Raman scattering as a probe of intermediate phases in glassy networks. Journal of Raman Spectroscopy, 2007, 38, 660-672.	2.5	42
42	Topological Origin of Fragility, Network Adaptation, and Rigidity and Stress Transitions in Especially Homogenized Nonstoichiometric Binary Ge_{<i>x</i>}S_{100â€“<i>x</i>} Glasses. Journal of Physical Chemistry B, 2014, 118, 2249-2263.	2.6	42
43	Lamb-MÃ¶ssbauer factors as a local probe of floppy modes in network glasses. Journal of Non-Crystalline Solids, 1995, 182, 143-154.	3.1	39
44	Crucial effect of melt homogenization on the fragility of non-stoichiometric chalcogenides. Journal of Chemical Physics, 2014, 140, 134501.	3.0	38
45	Macroscopic phase separation of Se-rich (x< 1/3) ternary Agy(GexSe1Âx)1Âyglasses. Journal of Physics Condensed Matter, 2003, 15, S1573-S1584.	1.8	37
46	Coordination-number-induced morphological structural transition in a network glass. Physical Review B, 1987, 36, 8109-8114.	3.2	35
47	Microscopic origin of the glass forming tendency in chalcohalides and constraint theory. Journal of Non-Crystalline Solids, 1998, 240, 1-21.	3.1	35
48	Shift in elastic phase boundaries due to nanoscale phase separation in network glasses: the case of GexAsxS1â€‰âˆ’â€‰2x. Philosophical Magazine, 2005, 85, 875-884.	1.6	35
49	Fast-ion conduction and flexibility and rigidity of solid electrolyte glasses. Physical Review B, 2009, 80, .	3.2	34
50	Comment on â€˜â€˜Rigidity percolation in the germanium-arsenic-selenium alloy systemâ€™â€™. Physical Review Letters, 1986, 57, 3233-3233.	7.8	30
51	Raman spectroscopy study of the influence of processing conditions on the structure of polycrystalline diamond films. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2006, 24, 179-189.	2.1	30
52	Elastic flexibility, fast-ion conduction, boson and floppy modes in AgPO₃â€“AgI glasses. Journal of Physics Condensed Matter, 2009, 21, 205106.	1.8	29
53	Evidence for isoelectronic Sn for Ge substitution in crystalline and glassy GeSe2. Physical Review B, 1984, 29, 1-7.	3.2	28
54	Direct evidence for intrinsically broken 8 -Ncoordination rule in melt-quenched glasses by a novel method. Physical Review B, 1982, 25, 2971-2974.	3.2	27

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55	Origin of glass formation. Physical Review Letters, 1985, 55, 242-245.	7.8	27
56	Insitupreparation of superconducting Y1Ba2Cu3O7âˆ’Î´thin films by onâ€axis rf magnetron sputtering from a stoichiometric target. Applied Physics Letters, 1991, 58, 2036-2038.	3.3	24
57	129I and 119Sn MÃ¶ssbauer spectroscopy, reversibility window and nanoscale phase separation in binary GexSe1âˆ’x glasses. Physica B: Condensed Matter, 2007, 389, 18-28.	2.7	24
58	Effect of mixed Ge/Si cross-linking on the physical properties of amorphous Ge-Si-Te networks. Journal of Applied Physics, 2014, 115, .	2.5	24
59	Molecular phase separation in stoichiometric chalcogenide glasses. Journal of Non-Crystalline Solids, 1985, 72, 1-22.	3.1	22
60	Nuclear quadrupole resonance study of the glassy AsxSe1âˆ’x system. Journal of Non-Crystalline Solids, 2002, 299-302, 958-962.	3.1	22
61	Structural singularities in GexTe100âˆ’x films. Journal of Chemical Physics, 2015, 143, 074502.	3.0	22
62	Glassy materials with enhanced thermal stability. MRS Bulletin, 2017, 42, 23-28.	3.5	22
63	Molecular origin of aging of pure Se glass: Growth of inter-chain structural correlations, network compaction, and partial ordering. Journal of Chemical Physics, 2017, 146, 224506.	3.0	22
64	Fragility and molar volumes of non-stoichiometric chalcogenides: The crucial role of melt/glass homogenization. Physica Status Solidi (B): Basic Research, 2014, 251, 1322-1329.	1.5	21
65	Structural principles in network glasses. Hyperfine Interactions, 1986, 27, 3-14.	0.5	20
66	Elastic Phases of Ge_{<i>x</i>}Sb_{<i>x</i>}Se_{100â€“2<i>x</i>} Ternary Glasses Driven by Topology. Journal of Physical Chemistry B, 2013, 117, 10027-10034.	2.6	20
67	Structural properties of Ge-S amorphous networks in relationship with rigidity transitions: An<i>ab initio</i>molecular dynamics study. Physical Review B, 2017, 96, .	3.2	20
68	Growth and characterization of rare-earth monosulfides for cold cathode applications. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 2001, 19, 1958.	1.6	19
69	Role of network connectivity on the elastic, plastic and thermal behavior of covalent glasses. Journal of Non-Crystalline Solids, 1997, 222, 137-143.	3.1	18
70	Rigidity transitions in glasses driven by changes in network dimensionality and structural groupings. Europhysics Letters, 2014, 108, 56001.	2.0	18
71	The molecular structure of As2Se3 glass. Hyperfine Interactions, 1986, 27, 385-388.	0.5	17
72	A MÃ¶ssbauer spectroscopy study of nanoscale Geâ€“Sn dispersions prepared by ball milling. Journal of Materials Research, 1992, 7, 2876-2883.	2.6	17

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73	The thermally reversing window in ternary GexPxS1Â2xglasses. Journal of Physics Condensed Matter, 2004, 16, S5121-S5138.	1.8	17
74	Slab waveguides and nanoscale patterning of pulsed laser-deposited Ge0.2Se0.8 chalcogenide films. Applied Physics Letters, 2008, 93, .	3.3	17
75	Midgap states, Raman scattering, glass homogeneity, percolative rigidity and stress transitions in chalcogenides. Physica Status Solidi (B): Basic Research, 2012, 249, 2013-2018.	1.5	16
76	Reversibility window in as-quenched Geâ€“Asâ€“S glasses. Journal of Physics and Chemistry of Solids, 2005, 66, 185-189.	4.0	15
77	Origin of giant photocontraction in obliquely deposited amorphous<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>Ge</mml:mtext></mml:mrow><mml:mi>x</mml:mi></mml:msub films and the intermediate phase. Physical Review B, 2008, 78, .	3.2	15
78	The Intermediate Phase in Ternary Ge_xAs_xSe_{1â€“2x} Glasses. Materials Research Society Symposia Proceedings, 2002, 754, 1.	0.1	14
79	Designing heavy metal oxide glasses with threshold properties from network rigidity. Journal of Chemical Physics, 2014, 140, 014503.	3.0	14
80	Molecular structure of (As2Se3)x(As2Te3 glasses: Chemical equivalence of 125Te absorption and 129I) Tj ETQq0 0 0 rgBT /Overlock 10		
	Scientific Instruments, 1995, 66, 3051-3057.	1.3	11
88	Topology and glass structure evolution in (BaO)x((B2O3)32(SiO2)68)100 âˆ' x ternaryâ€"Evidence of rigid, intermediate, and flexible phases. Journal of Chemical Physics, 2014, 140, 144506.	3.0	11
89	Medium range structure in a network glass established by a local probe. Journal of Non-Crystalline Solids, 1996, 195, 170-175.	3.1	10
90	Local- and intermediate-range structures of Asâ€“Se glasses from the stoichiometric to the stiffness transition region. Journal of Non-Crystalline Solids, 2016, 431, 31-35.	3.1	10

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91	Molecular phase separation and cluster size in GeSe2 glass. Hyperfine Interactions, 1986, 27, 389-392.	0.5	8
92	Melt dynamics, nature of glass transition and topological phases of equimolar GexAsxS100âˆ'2x ternary glasses. Journal of Alloys and Compounds, 2021, 868, 159101.	5.5	6
93	Direct evidence for intrinsically broken chalcogen chemical order in GeSe2xTe2âˆ'2x alloy glasses. Nuclear Instruments & Methods in Physics Research, 1982, 199, 295-299.	0.9	5
94	Vibrational Excitations in Glasses â€" B. VIBRATIONAL EXCITATIONS IN GLASSES: RIGIDITY TRANSITION AND LAMB-MÃ–SSBAUER FACTORS. Series on Directions in Condensed Matter Physics, 2000, , 369-414.	0.1	5
95	The effects of thermal annealing on the obliquely deposited Agâ€"Geâ€"S thin films. Journal of Physics and Chemistry of Solids, 2009, 70, 978-981.	4.0	5
96	GeSnSe3 glass â€" A novel exception to the Ioffe-Regel rule. Solid State Communications, 1987, 62, 197-200.	1.9	4
97	Comment on â€œMicroscopic Theory of Network Glassesâ€. Physical Review Letters, 2003, 91, 159601; author repy 159602.	7.8	4
98	Molecular structure and crystallization behavior of chalcogenide glasses. Journal of Non-Crystalline Solids, 1987, 91, 1-7.	3.1	3
99	Molecular Origin of Glass Forming Tendency in Ternary Te-Se-Br(Cl) Chalcohalide Glasses. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1996, 51, 373-380.	1.5	3
100	Nanoscale phase separation of GeS₂glass. The Philosophical Magazine: Physics of Condensed Matter B, Statistical Mechanics, Electronic, Optical and Magnetic Properties, 2002, 82, 1649-1657.	0.6	3
101	119Sn MÃ¶ssbauer spectroscopy of the time-resolved evolution of SnCl3âˆ' ligand structure on the surface of growing platinum nanoparticles. Applied Surface Science, 2018, 448, 362-368.	6.1	3
102	Evidence for 3-D network of P-centered pyramidal P(Se1/2)3 and quasi-tetrahedral Se P(Se1/2)3 local structures and their 3-membered ring super structure counterparts decoupled from quasi 1D-ethylene-like P2Se2+x (xÂ=Â2,1,0) chains in PxSe100âˆ'x glasses. Journal of Alloys and Compounds, 2021, 895, 162645.	5.5	3
103	STRUCTURAL ORIGIN OF GLASS FORMATION IN GROUP IV DISELENIDES. Phosphorous and Sulfur and the Related Elements, 1988, 38, 305-316.	0.2	2
104	Nuclear Quadrupole Interactions as a Probe of Glass Molecular Structure. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1996, 51, 572-584.	1.5	2
105	Evidence for the Intermediate Phase in Chalcogenide Glasses. , 2002, , 65-84.		2
106	Rigidity Transition in Chalcogenide Glasses. , 2002, , 279-295.		2
107	<i>Response</i> : Broken Bond-Bending Constraints and Glass Formation in the Oxides. Science, 1995, 268, 1510-1511.	12.6	1
108	MÃ¶ssbauer Spectroscopy â€" A Local Probe of Short and Medium Range Order in Network Glasses. Materials Research Society Symposia Proceedings, 1985, 61, 57.	0.1	0

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109	Vibrational densities of states for glassy se-ge alloys by neutron scattering. , 1987, , .		0
110	Ultrasonic search for the floppy-rigid transition in bulk se_{1â€“x} ge_x glasses. , 1987, , .		0
111	Towards the Realization of a INP/CDS/LAS Cold Cathode. Materials Research Society Symposia Proceedings, 1999, 558, 545.	0.1	0
112	Response to â€œComment on â€˜Molecular origin of aging of pure Se glass: Growth of inter-chain structural correlations, network compaction, and partial orderingâ€™â€•[J. Chem. Phys. 148, 157101 (2018)]. Journal of Chemical Physics, 2018, 148, 157102.	3.0	0