

# Charanjit Singh Bhatia

## List of Publications by Year in descending order

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129  
papers

3,201  
citations

201674

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g-index

129  
all docs

129  
docs citations

129  
times ranked

3985  
citing authors

#	ARTICLE	IF	CITATIONS
1	Surface-Energy Engineering of Graphene. Langmuir, 2010, 26, 3798-3802.	3.5	426
2	Hardness, elastic modulus, and structure of very hard carbon films produced by cathodic arc deposition with substrate pulse biasing. Applied Physics Letters, 1996, 68, 779-781.	3.3	255
3	A practical superhydrophilic self cleaning and antireflective surface for outdoor photovoltaic applications. Solar Energy Materials and Solar Cells, 2012, 98, 46-51.	6.2	160
4	Self-cleaning and antireflective packaging glass for solar modules. Renewable Energy, 2011, 36, 2489-2493.	8.9	151
5	Excellent <i>c</i> -Si surface passivation by low-temperature atomic layer deposited titanium oxide. Applied Physics Letters, 2014, 104, .	3.3	126
6	Frictional characteristics of exfoliated and epitaxial graphene. Carbon, 2011, 49, 4070-4073.	10.3	116
7	TiO <sub>2</sub> Thin Films Prepared via Adsorptive Self-Assembly for Self-Cleaning Applications. ACS Applied Materials & Interfaces, 2012, 4, 1093-1102.	8.0	92
8	The Effect of Dust on Transmission and Self-cleaning Property of Solar Panels. Energy Procedia, 2012, 15, 421-427.	1.8	66
9	Ultrathin diamond-like carbon films deposited by filtered carbon vacuum arcs. IEEE Transactions on Plasma Science, 2001, 29, 768-775.	1.3	55
10	Thermal analysis and performance optimization of a solar hot water plant with economic evaluation. Solar Energy, 2012, 86, 1378-1395.	6.1	55
11	The effect of light soaking on crystalline silicon surface passivation by atomic layer deposited Al <sub>2</sub> O <sub>3</sub> . Journal of Applied Physics, 2013, 113, .	2.5	55
12	Outdoor performance and durability testing of antireflecting and self-cleaning glass for photovoltaic applications. Solar Energy, 2014, 110, 231-238.	6.1	54
13	Nanotribological characterization of hydrogenated carbon films by scanning probe microscopy. Thin Solid Films, 1995, 258, 75-81.	1.8	51
14	Interface Engineering and Controlling the Friction and Wear of Ultrathin Carbon Films: High <i>sp</i> <sup>3</sup> Versus High <i>sp</i> <sup>2</sup> Carbons. Advanced Functional Materials, 2016, 26, 1526-1542.	14.9	44
15	Passivation of Boron-Doped Industrial Silicon Emitters by Thermal Atomic Layer Deposited Titanium Oxide. IEEE Journal of Photovoltaics, 2015, 5, 1062-1066.	2.5	41
16	Strain-enhanced tunneling magnetoresistance in MgO magnetic tunnel junctions. Scientific Reports, 2014, 4, 6505.	3.3	36
17	Enhancement of optical transmission with random nanohole structures. Optics Express, 2011, 19, A35.	3.4	35
18	Gaseous wear products from perfluoropolyether lubricant films. Wear, 1993, 168, 31-36.	3.1	34

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19	Integral resonant control for suppression of resonance in piezoelectric micro-actuator used in precision servomechanism. <i>Mechatronics</i> , 2013, 23, 1-9.	3.3	34
20	Ultrathin Carbon with Interspersed Graphene/Fullerene-like Nanostructures: A Durable Protective Overcoat for High Density Magnetic Storage. <i>Scientific Reports</i> , 2015, 5, 11607.	3.3	33
21	Ultrathin CN <sub>x</sub> overcoats for 10Tb/in. <sup>2</sup> hard disk drive systems. <i>Applied Physics Letters</i> , 2002, 81, 1113-1115.	3.3	32
22	Tribo-chemistry at the head/disk interface. <i>IEEE Transactions on Magnetics</i> , 1999, 35, 910-915.	2.1	31
23	The decomposition mechanisms of a perfluoropolyether at the head/disk interface of hard disk drives. <i>Tribology Letters</i> , 1998, 5, 203-209.	2.6	30
24	Corrosion performance of ultrathin carbon nitride overcoats synthesized by magnetron sputtering. <i>Thin Solid Films</i> , 2001, 381, 6-9.	1.8	30
25	Ambipolar bistable switching effect of graphene. <i>Applied Physics Letters</i> , 2010, 97, .	3.3	30
26	Understanding Surface Treatment and ALD AlO <sub>x</sub> Thickness Induced Surface Passivation Quality of c-Si Cz Wafers. <i>IEEE Journal of Photovoltaics</i> , 2017, 7, 1224-1235.	2.5	30
27	Effect of lubricant bonding fraction at the head-disk interface. <i>Tribology Letters</i> , 2001, 10, 195-201.	2.6	28
28	Flyability and flying height modulation measurement of sliders with sub-10 nm flying heights. <i>IEEE Transactions on Magnetics</i> , 2001, 37, 894-899.	2.1	28
29	The rise of carbon materials for field emission. <i>Journal of Materials Chemistry C</i> , 2021, 9, 2620-2659.	5.5	28
30	Magnetic recording measurements of high coercivity longitudinal media using magnetic force microscopy (MFM). <i>Journal of Applied Physics</i> , 1996, 79, 5327.	2.5	26
31	Enhanced Tribological, Corrosion, and Microstructural Properties of an Ultrathin (<2 nm) Silicon Nitride/Carbon Bilayer Overcoat for High Density Magnetic Storage. <i>ACS Applied Materials &amp; Interfaces</i> , 2014, 6, 9376-9385.	8.0	24
32	Parallel-leaky capacitance equivalent circuit model for MgO magnetic tunnel junctions. <i>Applied Physics Letters</i> , 2012, 101, .	3.3	23
33	Correlation of nanoscale behaviour of forces and macroscale surface wettability. <i>Nanoscale</i> , 2016, 8, 15597-15603.	5.6	23
34	Evidence for Chemicals Intermingling at Silicon/Titanium Oxide (TiO <sub>x</sub> ) Interface and Existence of Multiple Bonding States in Monolithic TiO <sub>x</sub> . <i>Advanced Functional Materials</i> , 2018, 28, 1707018.	14.9	23
35	Boosting contact sliding and wear protection via atomic intermixing and tailoring of nanoscale interfaces. <i>Science Advances</i> , 2019, 5, eaau7886.	10.3	22
36	The effects of disk morphology on flying-height modulation: experiment and simulation. <i>IEEE Transactions on Magnetics</i> , 2002, 38, 107-111.	2.1	21

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37	Overcoat Free Magnetic Media for Lower Magnetic Spacing and Improved Tribological Properties for Higher Areal Densities. Tribology Letters, 2011, 43, 247-256.	2.6	21
38	Bulk heterojunction formation with induced concentration gradient from a bilayer structure of P3HT:CdSe/ZnS quantum dots using inter-diffusion process for developing high efficiency solar cell. Organic Electronics, 2012, 13, 710-714.	2.6	21
39	Title is missing!. Tribology Letters, 1999, 7, 1-10.	2.6	20
40	Effect of pre-treatment of the substrate surface by energetic C <sup>+</sup> ion bombardment on structure and nano-tribological characteristics of ultra-thin tetrahedral amorphous carbon (ta-C) protective coatings. Journal Physics D: Applied Physics, 2011, 44, 115502.	2.8	20
41	Bi-level surface modification of hard disk media by carbon using filtered cathodic vacuum arc: Reduced overcoat thickness without reduced corrosion performance. Diamond and Related Materials, 2014, 44, 100-108.	3.9	20
42	Atomic Scale Interface Manipulation, Structural Engineering, and Their Impact on Ultrathin Carbon Films in Controlling Wear, Friction, and Corrosion. ACS Applied Materials & Interfaces, 2016, 8, 17606-17621.	8.0	20
43	Air bearing design, optimization, stability analysis and verification for sub-25 nm flying. IEEE Transactions on Magnetics, 1996, 32, 103-109.	2.1	19
44	Enhanced luminance of MEH-PPV based PLEDs using single walled carbon nanotube composite as an electron transporting layer. Journal of Luminescence, 2010, 130, 2157-2160.	3.1	19
45	Excellent <i>c</i> -Si surface passivation by thermal atomic layer deposited aluminum oxide after industrial firing activation. Journal Physics D: Applied Physics, 2013, 46, 385102.	2.8	19
46	Electrical transport properties of polycrystalline CVD graphene on SiO <sub>2</sub> /Si substrate. Diamond and Related Materials, 2014, 45, 28-33.	3.9	19
47	Preparation of Ag/TiO <sub>2</sub> /SiO <sub>2</sub> films via photo-assisted deposition and adsorptive self-assembly for catalytic bactericidal application. Applied Surface Science, 2014, 311, 582-592.	6.1	19
48	Probing the Role of Carbon Microstructure on the Thermal Stability and Performance of Ultrathin (<math>\approx 2\text{ nm}</math>) Overcoats on $\text{FePt}$ Media for Heat-Assisted Magnetic Recording. ACS Applied Materials & Interfaces, 2015, 7, 158-165.	8.0	19
49	Probing the role of C <sup>+</sup> ion energy, thickness and graded structure on the functional and microstructural characteristics of ultrathin carbon films (<math>\approx 2\text{ nm}</math>). Tribology International, 2015, 81, 73-88.	5.9	19
50	A Novel Approach of Carbon Embedding in Magnetic Media for Future Head/Disk Interface. IEEE Transactions on Magnetics, 2012, 48, 1807-1812.	2.1	18
51	Biaxial strain effect of spin dependent tunneling in MgO magnetic tunnel junctions. Applied Physics Letters, 2012, 101, 042407.	3.3	18
52	Friction and wear durability studies on the 3D negative fingerprint and honeycomb textured SU-8 surfaces. Tribology International, 2013, 60, 187-197.	5.9	18
53	Deposition temperature independent excellent passivation of highly boron doped silicon emitters by thermal atomic layer deposited Al <sub>2</sub> O <sub>3</sub> . Journal of Applied Physics, 2013, 114, 094505.	2.5	18
54	Combined Thermography and Luminescence Imaging to Characterize the Spatial Performance of Multicrystalline Si Wafer Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 102-111.	2.5	18

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55	Direct observation of thickness and foreign interlayer driven abrupt structural transformation in ultrathin carbon and hybrid silicon nitride/carbon films. Carbon, 2017, 115, 701-719.	10.3	18
56	Slippery and Wear-Resistant Surfaces Enabled by Interface Engineered Graphene. Nano Letters, 2020, 20, 905-917.	9.1	18
57	Effect of angstrom-scale surface roughness on the self-assembly of polystyrene-polydimethylsiloxane block copolymer. Scientific Reports, 2012, 2, 617.	3.3	17
58	Superior wear resistance and low friction in hybrid ultrathin silicon nitride/carbon films: synergy of the interfacial chemistry and carbon microstructure. Nanoscale, 2017, 9, 14937-14951.	5.6	17
59	Some tribology and mechanics issues for 100-Gb/in <sup>2</sup> /hard disk drive. IEEE Transactions on Magnetics, 2002, 38, 1879-1885.	2.1	16
60	Synchronization of spin-transfer torque oscillators by spin pumping, inverse spin Hall, and spin Hall effects. Journal of Applied Physics, 2015, 117, 063907.	2.5	16
61	Durable ultrathin silicon nitride/carbon bilayer overcoats for magnetic heads: The role of enhanced interfacial bonding. Journal of Applied Physics, 2015, 117, .	2.5	15
62	Enhanced characteristics of pulsed DC sputtered ultrathin (<2nm) amorphous carbon overcoats on hard disk magnetic media. Diamond and Related Materials, 2015, 51, 14-23.	3.9	15
63	Title is missing!. Tribology Letters, 2000, 8, 25-34.	2.6	14
64	Ultrathin Si/C graded layer to improve tribological properties of Co magnetic films. Applied Physics Letters, 2012, 101, 191601.	3.3	14
65	Adsorption and surface diffusion of titanium on tungsten in a field emission microscope. Surface Science, 1974, 43, 369-384.	1.9	13
66	Gaseous wear products from lubricated thin film disks. IEEE Transactions on Magnetics, 1993, 29, 253-258.	2.1	13
67	Tunneling characteristics of graphene. Applied Physics Letters, 2010, 97, 252102.	3.3	13
68	Dual-Stage Nanopositioning Scheme for 10 Tbit/in <sup>2</sup> Hard Disk Drives With a Shear-Mode Piezoelectric Single-Crystal Microactuator. IEEE Transactions on Magnetics, 2015, 51, 1-9.	2.1	13
69	Increasing the luminous efficiency of an MEH-PPV based PLED using salmon DNA and single walled carbon nanotube. Journal of Luminescence, 2011, 131, 1264-1266.	3.1	12
70	Tribochemical wear of carbon films in oxygen. Journal of Applied Physics, 1994, 76, 4651-4655.	2.5	11
71	Nanomechanical properties of CN <sub>x</sub> overcoats and cathodic arc carbon (CAC) films. IEEE Transactions on Magnetics, 1998, 34, 1720-1722.	2.1	11
72	Ion implantation post-processing of amorphous carbon films. Diamond and Related Materials, 1999, 8, 451-456.	3.9	11

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73	Ion implantation induced modification of structural and magnetic properties of perpendicular media. Journal Physics D: Applied Physics, 2011, 44, 365001.	2.8	11
74	First-Order Reversal Curve Investigations on the Effects of Ion Implantation in Magnetic Media. IEEE Transactions on Magnetics, 2012, 48, 2753-2756.	2.1	11
75	Omnidirectional study of nanostructured glass packaging for solar modules. Progress in Photovoltaics: Research and Applications, 2014, 22, 356-361.	8.1	11
76	Development of a ta-C Wear Resistant Coating with Composite Interlayer for Recording Heads of Magnetic Tape Drives. Tribology Letters, 2012, 46, 221-232.	2.6	10
77	Nucleation and growth of silicon on tungsten and molybdenum in a field emission microscope. Journal of Applied Physics, 1975, 46, 4685-4688.	2.5	9
78	Design tradeoffs for beyond 20 Gb/in.2: Using a merged notched head on advanced low noise media (invited). Journal of Applied Physics, 2000, 87, 4996-5000.	2.5	9
79	Developing an (Al,Ti)N x C y Interlayer to Improve the Durability of the ta-C Coating on Magnetic Recording Heads. Tribology Letters, 2013, 50, 233-243.	2.6	9
80	Electrical detection of microwave assisted magnetization reversal by spin pumping. Applied Physics Letters, 2014, 104, .	3.3	9
81	Extraction of Surface Recombination Velocity at Highly Doped Silicon Surfaces Using Electron-Beam-Induced Current. IEEE Journal of Photovoltaics, 2015, 5, 263-268.	2.5	9
82	Effect of carbon embedding on the tribological properties of magnetic media surface with and without a perfluoropolyether (PFPE) layer. Journal Physics D: Applied Physics, 2011, 44, 315301.	2.8	8
83	Design and fabrication of high efficiency power coupler between different photonic crystal waveguides. Applied Physics Letters, 2011, 98, 241102.	3.3	8
84	Large scale antireflective glass texturing using grid contacts in anodization methods. Solar Energy Materials and Solar Cells, 2013, 116, 9-13.	6.2	8
85	Current induced annealing and electrical characterization of single layer graphene grown by chemical vapor deposition for future interconnects in VLSI circuits. Applied Physics Letters, 2014, 105, .	3.3	7
86	Improving the efficiency of a poly(3-hexylthiophene)-CuInS <sub>2</sub> photovoltaic device by incorporating graphene nanopowder. Journal of Nanophotonics, 2014, 8, 083092.	1.0	7
87	Ion Implantation Challenges for Patterned Media at Areal Densities Over 5 Tbps. IEEE Transactions on Magnetics, 2014, 50, 41-46.	2.1	7
88	An ultrathin multilayer TiN/SiN wear resistant coating for advanced magnetic tape drive heads. Thin Solid Films, 2014, 556, 354-360.	1.8	7
89	Nanotribological evaluations of hydrogenated carbon films as thin as 5 nm on magnetic rigid disks. IEEE Transactions on Magnetics, 1995, 31, 3015-3017.	2.1	6
90	Wear of hydrogenated carbon coated disks by carbon coated and uncoated Al <sub>2</sub> O <sub>3</sub> /TiC sliders in ultra high vacuum. IEEE Transactions on Magnetics, 1996, 32, 3669-3671.	2.1	6

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91	Interface mediated control of microstructure and magnetic properties of FePt/C thin films. Journal of Magnetism and Magnetic Materials, 2011, 323, 2658-2662.	2.3	6
92	Stochastic nonlinear electrical characteristics of graphene. Applied Physics Letters, 2013, 102, .	3.3	6
93	Epitaxial ferroelectric $0.3\text{Pb}(\text{In}_{1/2}\text{Nb}_{1/2})\text{O}_3 \approx 0.38\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3 \approx 0.32\text{PbTiO}_3$ thin films grown on (110)-oriented MgO substrates. Thin Solid Films, 2015, 597, 193-196.	1.8	6
94	Characterization of C-apertures in a successful demonstration of heat-assisted magnetic recording. Optics Letters, 2015, 40, 3444.	3.3	6
95	Effect of FePt on resonant behaviour of a near field transducer for high areal density heat assisted magnetic recording. Applied Physics Letters, 2014, 104, .	3.3	5
96	Exchange coupled CoPt/FePtC media for heat assisted magnetic recording. Applied Physics Letters, 2018, 112, 142411.	3.3	5
97	Angstrom-Scale Transparent Overcoats: Interfacial Nitrogen-Driven Atomic Intermingling Promotes Lubricity and Surface Protection of Ultrathin Carbon. Nano Letters, 2021, 21, 8960-8969.	9.1	5
98	Effect of the additive X-1P on the tribological performance and migration behavior of PFPE lubricant at the head-disk interface. IEEE Transactions on Magnetics, 2000, 36, 2708-2710.	2.1	4
99	Magnetic field control of hysteretic switching in Co/Al <sub>2</sub> O <sub>3</sub> multilayers by carrier injection. AIP Advances, 2011, 1, .	1.3	4
100	Magneto-optical Kerr effect investigation on magnetoelectric coupling in ferromagnetic/antiferroelectric multilayer thin film structures. Applied Physics Letters, 2012, 101, .	3.3	4
101	Spacer-less, decoupled granular L10 FePt magnetic media using Ar/He sputtering gas. Journal of Applied Physics, 2012, 112, 113916.	2.5	4
102	Structural Evolution and Properties of $0.3\text{Pb}(\text{In}_{1/2}\text{Nb}_{1/2})\text{O}_3$ Ferroelectric Ceramics with Different Sintering Times. Journal of the American Ceramic Society, 2014, 97, 3294-3300.	3.8	4
103	Non-destructive patterning of 10 nm magnetic island array by phase transformation with low-energy proton irradiation. Applied Physics Letters, 2017, 111, .	3.3	4
104	Ultrafine and High Aspect Ratio Metal Lines by Electron Beam Lithography for Silicon Solar Cell Metallisation. Energy Procedia, 2012, 15, 91-96.	1.8	3
105	Energy gradient carbon embedding in the magnetic media for improved tribological performance. Surface and Coatings Technology, 2014, 242, 152-156.	4.8	3
106	Time-resolved imaging of pulse-induced magnetization reversal with a microwave assist field. Scientific Reports, 2015, 5, 10695.	3.3	3
107	Two-step temperature deposited FePt bilayer for tunable magnetic properties. Journal Physics D: Applied Physics, 2015, 48, 445007.	2.8	3
108	Magnetization reversal using excitation of collective modes in nanodot matrices. Scientific Reports, 2015, 5, 7908.	3.3	3

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109	Cloaking the magnons. Physical Review B, 2016, 93, .	3.2	3
110	Ion-Implantation Studies on Perpendicular Media. Journal of Nanoscience and Nanotechnology, 2011, 11, 2619-2622.	0.9	2
111	Nondestructive Defect Characterization of Saw-Damage-Etched Multicrystalline Silicon Wafers Using Scanning Electron Acoustic Microscopy. IEEE Journal of Photovoltaics, 2013, 3, 370-374.	2.5	2
112	Comparison of Corrosion and Tribological Properties of Ultrathin (&#x003C;2 nm) Carbon Films on Hard-Disk Media by DC Sputtering and FCVA Processes. IEEE Transactions on Magnetics, 2014, 50, 1-4.	2.1	2
113	Spin wave non-reciprocity and beating in permalloy by the time-resolved magneto-optical Kerr effect. Journal Physics D: Applied Physics, 2014, 47, 385002.	2.8	2
114	Nitrogen plasma treatment in two-step temperature deposited FePt bilayer media. Journal of Magnetism and Magnetic Materials, 2018, 461, 6-13.	2.3	2
115	Design, simulation, fabrication and measurement of a 25 nm, 50% slider. IEEE Transactions on Magnetics, 1995, 31, 2952-2954.	2.1	1
116	Fabrication and experimental study of Al <sub>2</sub> O <sub>3</sub> -TiC sliders with piezoelectric nanoactuators for flying height control. Microsystem Technologies, 2007, 13, 751-757.	2.0	1
117	Integral Resonant Control for Suppression of Micro-Actuator Resonance in Dual Stage Actuator. IEEE Transactions on Magnetics, 2012, 48, 4614-4617.	2.1	1
118	Electric-field-induced magnetization changes in Co/Al <sub>2</sub> O <sub>3</sub> granular multilayers. Physical Review B, 2013, 87, .	3.2	1
119	Tunable daughter molds from a single Si master grating mold. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2014, 32, 051601.	1.2	1
120	Individual magnetization reversal of a square dot matrix by common current excitation. Journal Physics D: Applied Physics, 2015, 48, 295301.	2.8	1
121	Application and modeling of single contact electron beam induced current technique on multicrystalline silicon solar cells. Solar Energy Materials and Solar Cells, 2015, 133, 143-147.	6.2	1
122	A Comprehensive Fundamental Understanding of Atomic Layer Deposited Titanium Oxide Films for c-Si Solar Cell Applications. IEEE Journal of Photovoltaics, 2021, 11, 319-328.	2.5	1
123	Omnidirectional optical transmission by optimized nano-structures of solar cells. , 2010, , .		0
124	Substrate bias effect on AlO <sub>x</sub> based magnetic tunnel junctions. Journal of Physics: Conference Series, 2011, 266, 012105.	0.4	0
125	Design of track following controller of dual actuated HDD servo for 10 Tb/in <sup>2</sup> &sup>2&lt;/sup> magnetic recording. , 2011, , .		0
126	Nondestructive defect characterization of saw-damage-etched multicrystalline silicon wafers using scanning electron acoustic microscopy. , 2012, , .		0



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127	Nondestructive defect characterization of saw-damage-etched multicrystalline silicon wafers using scanning electron acoustic microscopy. , 2013, , .		0
128	High density heat-assisted magnetic recording (HAMR) with use of nano-aperture optics. , 2015, , .		0
129	Growth and Composition of Atomic Layer Deposited Titanium Oxide Films for c-Si Solar Cell Applications. , 2018, , .		0