Mehdi Asheghi

List of Publications by Year
in descending order

93 papers	3,559 citations	245449 24 h-index	144563 57 g-index
93 all docs	93 docs citations	93 times ranked	4375 citing authors

#	Article	IF	Citations
1	Phase Change Memory. Proceedings of the IEEE, 2010, 98, 2201-2227.	26.4	1,465
2	Fundamental Cooling Limits for High Power Density Gallium Nitride Electronics. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2015, 5, 737-744.	2.7	107
3	Thermal Boundary Resistance Measurements for Phase-Change Memory Devices. IEEE Electron Device Letters, 2010, 31, 56-58.	4.2	106
4	Improved Thermal Interfaces of GaNâ€“Diamond Composite Substrates for HEMT Applications. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2013, 3, 79-85.	2.7	94
5	Phonon scattering in strained transition layers for GaN heteroepitaxy. Physical Review B, 2014, 89, .	3.3	92
6	Extreme Twoâ€Phase Cooling from Laserâ€Etched Diamond and Conformal, Templateâ€Fabricated Microporous Copper. Advanced Functional Materials, 2017, 27, 1703265.	16.5	89
7	Direct Visualization of Thermal Conductivity Suppression Due to Enhanced Phonon Scattering Near Individual Grain Boundaries. Nano Letters, 2018, 18, 3466-3472.	9.5	88
8	Low Thermal Resistances at GaNâ€“SiC Interfaces for HEMT Technology. IEEE Electron Device Letters, 2012, 33, 378-380.	4.2	86
9	Thermal conductivity anisotropy and grain structure in Ge2Sb2Te5 films. Journal of Applied Physics, 2011, 109, .	2.3	74
10	Phonon and electron transport through Ge2Sb2Te5 films and interfaces bounded by metals. Applied Physics Letters, 2013, 102, .	3.2	71
11	Phonon conduction in GaN-diamond composite substrates. Journal of Applied Physics, 2017, 121, .	2.3	70
12	Quasi-Ballistic Thermal Transport Across MoS₂ Thin Films. Nano Letters, 2019, 19, 2434-2442.	9.5	67
13	Thermal Modeling of Extreme Heat Flux Microchannel Coolers for GaN-on-SiC Semiconductor Devices. Journal of Electronic Packaging, Transactions of the ASME, 2016, 138, .	2.0	64
14	Enhanced Capillaryâ€Fed Boiling in Copper Inverse Opals via Template Sintering. Advanced Functional Materials, 2018, 28, 1803689.	16.5	56
15	Phonon Conduction in Periodically Porous Silicon Nanobridges. Nanoscale and Microscale Thermophysical Engineering, 2012, 16, 199-219.	2.6	54
16	Phase purity and the thermoelectric properties of Ge2Sb2Te5 films down to 25â€‰nm thickness. Journal of Applied Physics, 2012, 112, .	2.3	49
17	Cooling Limits for GaN HEMT Technology. , 2013, , .		39
18	Understanding the switching mechanism of interfacial phase change memory. Journal of Applied Physics, 2019, 125, .	2.3	39

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19	Uncovering Thermal and Electrical Properties of Sb₂Te₃/GeTe Superlattice Films. Nano Letters, 2021, 21, 5984-5990.	9.5	39
20	Thermal conduction inhomogeneity of nanocrystalline diamond films by dual-side thermoreflectance. Applied Physics Letters, 2013, 102, .	3.2	38
21	High temperature thermal properties of thin tantalum nitride films. Applied Physics Letters, 2011, 99, .	3.2	36
22	Improving the performance of Ge2Sb2Te5 materials via nickel doping: Towards RF-compatible phase-change devices. Applied Physics Letters, 2018, 113, .	3.2	36
23	Phonon Conduction in Silicon Nanobeam Labyrinths. Scientific Reports, 2017, 7, 6233.	3.4	29
24	Phase and thickness dependent modulus of Ge₂Sb₂Te₅ films down to 25â€‰nm thickness. Applied Physics Letters, 2012, 100, 161905.	3.2	28
25	Electrothermal Modeling and Design Strategies for Multibit Phase-Change Memory. IEEE Transactions on Electron Devices, 2012, 59, 3561-3567.	3.2	28
26	Thermal disturbance and its impact on reliability of phase-change memory studied by the micro-thermal stage. , 2010, , .		27
27	Phonon conduction in silicon nanobeams. Applied Physics Letters, 2017, 110, .	3.2	23
28	Microchannel cooling strategies for high heat flux (1 kW/cm²) power electronic applications. , 2017, , .		23
29	Characterization of the Thermal Conductivity of CVD Diamond for GaN-on-Diamond Devices. , 2016, , .		21
30	Thermal conduction properties of Mo/Si multilayers for extreme ultraviolet optics. Journal of Applied Physics, 2012, 112, 083504.	2.3	20
31	Enhanced phonon scattering by nanovoids in high thermoelectric power factor polysilicon thin films. Applied Physics Letters, 2016, 109, .	3.2	20
32	Performance and Manufacturing of Silicon-Based Vapor Chambers. Applied Mechanics Reviews, 2021, 73, .	10.3	20
33	Enhanced Thermal Conduction Through Nanostructured Interfaces. Nanoscale and Microscale Thermophysical Engineering, 2017, 21, 134-144.	2.6	19
34	Tailoring Permeability of Microporous Copper Structures through Template Sintering. ACS Applied Materials & Interfaces, 2018, 10, 30487-30494.	8.3	19
35	Heat Sinks With Enhanced Heat Transfer Capability for Electronic Cooling Applications. Journal of Electronic Packaging, Transactions of the ASME, 2006, 128, 285-290.	2.0	18
36	Experimental Characterization of Microfabricated Thermoelectric Energy Harvesters for Smart Sensor and Wearable Applications. Advanced Materials Technologies, 2018, 3, 1700383.	6.2	18

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37	Grain Boundaries, Phase Impurities, and Anisotropic Thermal Conduction in Phase-Change Memory. IEEE Electron Device Letters, 2011, 32, 961-963.	4.2	16
38	Thermal Interface Resistance Measurements for GaN-on-Diamond Composite Substrates. , 2014, , .		16
39	Experimental Investigation of Embedded Micropin-Fins for Single-Phase Heat Transfer and Pressure Drop. Journal of Electronic Packaging, Transactions of the ASME, 2018, 140, .	2.0	16
40	Enhanced Heat Transfer Using Microporous Copper Inverse Opals. Journal of Electronic Packaging, Transactions of the ASME, 2018, 140, .	2.0	16
41	Tungsten-doped Ge2Sb2Te5 phase change material for high-speed optical switching devices. Applied Physics Letters, 2020, 116, .	3.2	16
42	Crystallization properties and their drift dependence in phase-change memory studied with a micro-thermal stage. Journal of Applied Physics, 2011, 110, .	2.3	15
43	Temperature Dependent Thermal Resistances at GaN-Substrate Interfaces in GaN Composite Substrates. , 2012, , .		15
44	Fabrication and Characterization of Bi2Te3-Based Chip-Scale Thermoelectric Energy Harvesting Devices. Journal of Electronic Materials, 2017, 46, 2844-2846.	2.2	15
45	Thermal characterization and analysis of microliter liquid volumes using the three-omega method. Review of Scientific Instruments, 2015, 86, 024901.	1.4	14
46	Thermal characterization of GaN-on-diamond substrates for HEMT applications. , 2012, , .		13
47	A reliability study with infrared imaging of thermoelectric modules under thermal cycling. , 2012, , .		13
48	Tunable Dielectric and Thermal Properties of Oxide Dielectrics via Substrate Biasing in Plasma-Enhanced Atomic Layer Deposition. ACS Applied Materials & Interfaces, 2020, 12, 44912-44918.	8.3	13
49	Microthermal Stage for Electrothermal Characterization of Phase-Change Memory. IEEE Electron Device Letters, 2011, 32, 952-954.	4.2	12
50	Thermoelectric Characterization and Power Generation Using a Silicon-on-Insulator Substrate. Journal of Microelectromechanical Systems, 2012, 21, 4-6.	2.7	12
51	Thermal conduction normal to thin silicon nitride films on diamond and GaN. , 2014, , .		11
52	Thermal conductivity measurements on suspended diamond membranes using picosecond and femtosecond time-domain thermoreflectance. , 2017, , .		11
53	Thermal Conductivity Measurements and Modeling of Phase-Change Ge₂Sb₂Te₅Materials. Nanoscale and Microscale Thermophysical Engineering, 2009, 13, 88-98.	2.6	10
54	Effect of thermal cycling on commercial thermoelectric modules. , 2012, , .		10

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55	Cross-Plane Phonon Conduction in Polycrystalline Silicon Films. Journal of Heat Transfer, 2015, 137, .	2.3	9
56	Modular heat sink for chip-scale GaN transistors in multilevel converters. , 2018, , .		9
57	Tunable, passive thermal regulation through liquid to vapor phase change. Applied Physics Letters, 2019, 115, .	3.2	9
58	Thermal Characterization of Metalâ€“Oxide Interfaces Using Time-Domain Thermoreflectance with Nanograting Transducers. ACS Applied Materials & Interfaces, 2021, 13, 58059-58065.	8.3	9
59	A parametric study of Microporous Metal Matrix-Phase Change Material composite heat spreaders for transient thermal applications. , 2014, , .		7
60	Thermal Interface Enhancement via Inclusion of an Adhesive Layer Using Plasma-Enhanced Atomic Layer Deposition. ACS Applied Materials & Interfaces, 2021, 13, 21905-21913.	8.3	7
61	Dominant Energy Carrier Transitions and Thermal Anisotropy in Epitaxial Iridium Thin Films. Advanced Functional Materials, 2022, 32, .	16.5	7
62	Microfluidic Heat Exchangers for High Power Density GaN on SiC. , 2014, , .		6
63	Chip-scale thermal energy harvester using Bi2Te3. , 2015, , .		6
64	A method for quantifying in plane permeability of porous thin films. Journal of Colloid and Interface Science, 2018, 530, 667-674.	9.6	6
65	Simultaneous thickness and thermal conductivity measurements of thinned silicon from 100â€‰nm to 17â€‰Î¼m. Applied Physics Letters, 2021, 118, .	3.2	6
66	Thermal analyses of confined cell design for phase change random access memory (PCRAM). Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, 2008, , .	0.0	5
67	Anisotropic and nonhomogeneous thermal conduction in 1 µm thick CVD diamond. , 2014, , .		5
68	The Heat Conduction Renaissance. , 2018, , .		5
69	Experimental Investigation of Scaling Effect on Thermal Transport in Nanoscale Hot Spots. Nanoscale and Microscale Thermophysical Engineering, 2009, 13, 203-217.	2.6	4
70	Mechanical and thermal properties of copper inverse opals for two-phase convection enhancement. , 2014, , .		4
71	Considerations and Challenges for Large Area Embedded Micro-channels with 3D Manifold in High Heat Flux Power Electronics Applications. , 2020, , .		4
72	Nonâ€Contact Mass Density and Thermal Conductivity Measurements of Organic Thin Films Using Frequencyâ€“Domain Thermoreflectance. Advanced Materials Interfaces, 2022, 9, .	4.1	4

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73	Decoupled thermal resistances of phase change material and their impact on PCM devices. , 2010, , .		3
74	Phase-separation of wetting fluids using nanoporous alumina membranes and micro-glass capillaries. , 2014, , .		3
75	Optimization of hybrid wick structures for extreme spreading in high performance vapor chambers. , 2016, , .		3
76	Thermal and Manufacturing Design Considerations for Silicon-Based Embedded Microchannel-3D Manifold Coolers (EMMCs): Part 1â€"Experimental Study of Single-Phase Cooling Performance With R-245fa. Journal of Electronic Packaging, Transactions of the ASME, 2020, 142, .	2.0	3
77	Multiobjective Optimization of Graded, Hybrid Micropillar Wicks for Capillary-Fed Evaporation. Langmuir, 2022, 38, 221-230.	3.7	3
78	Comparison of thermal response of GMR sensor subjected to HBM and CDM transients. , 2004, , .		2
79	Thermal conductivity, anisotropy, and interface resistances of diamond on poly-AlN. , 2012, , .		2
80	Nanoscale conformable coatings for enhanced thermal conduction of carbon nanotube films. , 2012, , .		2
81	Analytical model of graphene-enabled ultra-low power phase change memory. , 2016, , .		2
82	Microfabrication Challenges for Silicon-based Large Area (>500 mm²) 3D-manifolded Embedded Microcooler Devices for High Heat Flux Removal. , 2020, , .		2
83	Thermal and Manufacturing Design Considerations for Silicon-Based Embedded Microchannel-Three-Dimensional Manifold Coolersâ€"Part 2: Parametric Study of EMMCs for High Heat Flux (â^¼1â€‰kW/cm2) Power Electronics Cooling. Journal of Electronic Packaging, Transactions of the ASME, 2020, 142, .	2.0	2
84	Thermal and Manufacturing Design Considerations for Silicon-Based Embedded Microchannel Three-Dimensional-Manifold Coolers (EMMC)â€"Part 3: Addressing Challenges in Laser Micromachining-Based Manufacturing of Three-Dimensional-Manifolded Microcooler Devices. Journal of Electronic Packaging, Transactions of the ASME, 2020, 142, .	2.0	2
85	Spatial frequency domain heat transfer analysis of hot spot spreading in convectively cooled microprocessors. Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, 2008, , .	0.0	1
86	Measurement of anisotropy in the thermal conductivity of Ge<inf>2</inf>Sb<inf>2</inf>Te<inf>5</inf> films. , 2009, , .		1
87	Rapid Thermal Characterization of the High Thermal Conductivity Film Layers by the Film-on Substrate Technique. Journal of Electronic Packaging, Transactions of the ASME, 2006, 128, 125-129.	2.0	0
88	Experimental investigation of nanoscale thermal transport in hotspots at cryogenic temperatures. Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, 2008, , .	0.0	0
89	Calibration methodology for interposing liquid coolants for infrared thermography of microprocessors. , 2012, , .		0
90	Impact of Annealing on the Thermoelectric Properties of Ge2Sb2Te5 Films. Materials Research Society Symposia Proceedings, 2012, 1490, 223-228.	0.1	0

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91	Special Section on InterPACK 2015. Journal of Electronic Packaging, Transactions of the ASME, 2016, 138, .	2.0	0
92	Thermal Management Research â€“ from Power Electronics to Portables. , 2018, , .		0
93	Mechanical Design and Reliability of Gold-Tin Eutectic Bonding for Silicon-based Thermal Management Devices. , 2020, , .		0