

Mehdi Asheghi

List of Publications by Year in descending order

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92
papers

3,365
citations

257450

24
h-index

155660

55
g-index

92
all docs

92
docs citations

92
times ranked

3548
citing authors

#	ARTICLE	IF	CITATIONS
1	Phase Change Memory. Proceedings of the IEEE, 2010, 98, 2201-2227.	21.3	1,420
2	Thermal Boundary Resistance Measurements for Phase-Change Memory Devices. IEEE Electron Device Letters, 2010, 31, 56-58.	3.9	105
3	Fundamental Cooling Limits for High Power Density Gallium Nitride Electronics. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2015, 5, 737-744.	2.5	100
4	Improved Thermal Interfaces of GaN-Diamond Composite Substrates for HEMT Applications. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2013, 3, 79-85.	2.5	91
5	Phonon scattering in strained transition layers for GaN heteroepitaxy. Physical Review B, 2014, 89, .	3.2	89
6	Extreme Two-Phase Cooling from Laser-Etched Diamond and Conformal, Template-Fabricated Microporous Copper. Advanced Functional Materials, 2017, 27, 1703265.	14.9	83
7	Low Thermal Resistances at GaN-SiC Interfaces for HEMT Technology. IEEE Electron Device Letters, 2012, 33, 378-380.	3.9	82
8	Direct Visualization of Thermal Conductivity Suppression Due to Enhanced Phonon Scattering Near Individual Grain Boundaries. Nano Letters, 2018, 18, 3466-3472.	9.1	74
9	Thermal conductivity anisotropy and grain structure in Ge ₂ Sb ₂ Te ₅ films. Journal of Applied Physics, 2011, 109, .	2.5	72
10	Phonon and electron transport through Ge ₂ Sb ₂ Te ₅ films and interfaces bounded by metals. Applied Physics Letters, 2013, 102, .	3.3	68
11	Phonon conduction in GaN-diamond composite substrates. Journal of Applied Physics, 2017, 121, .	2.5	62
12	Quasi-Ballistic Thermal Transport Across MoS ₂ Thin Films. Nano Letters, 2019, 19, 2434-2442.	9.1	61
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, .	1.8	60
14	Phonon Conduction in Periodically Porous Silicon Nanobridges. Nanoscale and Microscale Thermophysical Engineering, 2012, 16, 199-219.	2.6	54
15	Phase purity and the thermoelectric properties of Ge ₂ Sb ₂ Te ₅ films down to 25-nm thickness. Journal of Applied Physics, 2012, 112, .	2.5	49
16	Enhanced Capillary-Fed Boiling in Copper Inverse Opals via Template Sintering. Advanced Functional Materials, 2018, 28, 1803689.	14.9	46
17	Cooling Limits for GaN HEMT Technology. , 2013, , .		37
18	Thermal conduction inhomogeneity of nanocrystalline diamond films by dual-side thermorefectance. Applied Physics Letters, 2013, 102, .	3.3	37

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19	High temperature thermal properties of thin tantalum nitride films. Applied Physics Letters, 2011, 99, .	3.3	36
20	Understanding the switching mechanism of interfacial phase change memory. Journal of Applied Physics, 2019, 125, .	2.5	35
21	Improving the performance of Ge ₂ Sb ₂ Te ₅ materials via nickel doping: Towards RF-compatible phase-change devices. Applied Physics Letters, 2018, 113, 171903.	3.3	34
22	Uncovering Thermal and Electrical Properties of Sb ₂ Te ₃ /GeTe Superlattice Films. Nano Letters, 2021, 21, 5984-5990.	9.1	31
23	Electrothermal Modeling and Design Strategies for Multibit Phase-Change Memory. IEEE Transactions on Electron Devices, 2012, 59, 3561-3567.	3.0	28
24	Phonon Conduction in Silicon Nanobeam Labyrinths. Scientific Reports, 2017, 7, 6233.	3.3	28
25	Phase and thickness dependent modulus of Ge ₂ Sb ₂ Te ₅ films down to 25%nm thickness. Applied Physics Letters, 2012, 100, 161905.	3.3	27
26	Thermal disturbance and its impact on reliability of phase-change memory studied by the micro-thermal stage. , 2010, , .		26
27	Microchannel cooling strategies for high heat flux (1 kW/cm ²) power electronic applications. , 2017, , .		23
28	Phonon conduction in silicon nanobeams. Applied Physics Letters, 2017, 110, .	3.3	22
29	Thermal conduction properties of Mo/Si multilayers for extreme ultraviolet optics. Journal of Applied Physics, 2012, 112, 083504.	2.5	20
30	Enhanced phonon scattering by nanovoids in high thermoelectric power factor polysilicon thin films. Applied Physics Letters, 2016, 109, .	3.3	20
31	Characterization of the Thermal Conductivity of CVD Diamond for GaN-on-Diamond Devices. , 2016, , .		20
32	Heat Sinks With Enhanced Heat Transfer Capability for Electronic Cooling Applications. Journal of Electronic Packaging, Transactions of the ASME, 2006, 128, 285-290.	1.8	18
33	Enhanced Thermal Conduction Through Nanostructured Interfaces. Nanoscale and Microscale Thermophysical Engineering, 2017, 21, 134-144.	2.6	18
34	Tailoring Permeability of Microporous Copper Structures through Template Sintering. ACS Applied Materials & Interfaces, 2018, 10, 30487-30494.	8.0	18
35	Experimental Characterization of Microfabricated Thermoelectric Energy Harvesters for Smart Sensor and Wearable Applications. Advanced Materials Technologies, 2018, 3, 1700383.	5.8	17
36	Grain Boundaries, Phase Impurities, and Anisotropic Thermal Conduction in Phase-Change Memory. IEEE Electron Device Letters, 2011, 32, 961-963.	3.9	16

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37	Tungsten-doped Ge ₂ Sb ₂ Te ₅ phase change material for high-speed optical switching devices. Applied Physics Letters, 2020, 116, .	3.3	16
38	Crystallization properties and their drift dependence in phase-change memory studied with a micro-thermal stage. Journal of Applied Physics, 2011, 110, .	2.5	15
39	Temperature Dependent Thermal Resistances at GaN-Substrate Interfaces in GaN Composite Substrates. , 2012, , .		15
40	Thermal characterization and analysis of microliter liquid volumes using the three-omega method. Review of Scientific Instruments, 2015, 86, 024901.	1.3	14
41	Fabrication and Characterization of Bi ₂ Te ₃ -Based Chip-Scale Thermoelectric Energy Harvesting Devices. Journal of Electronic Materials, 2017, 46, 2844-2846.	2.2	14
42	Experimental Investigation of Embedded Micropin-Fins for Single-Phase Heat Transfer and Pressure Drop. Journal of Electronic Packaging, Transactions of the ASME, 2018, 140, .	1.8	14
43	Performance and Manufacturing of Silicon-Based Vapor Chambers. Applied Mechanics Reviews, 2021, 73, .	10.1	14
44	A reliability study with infrared imaging of thermoelectric modules under thermal cycling. , 2012, , .		13
45	Thermal Interface Resistance Measurements for GaN-on-Diamond Composite Substrates. , 2014, , .		13
46	Thermal characterization of GaN-on-diamond substrates for HEMT applications. , 2012, , .		12
47	Microthermal Stage for Electrothermal Characterization of Phase-Change Memory. IEEE Electron Device Letters, 2011, 32, 952-954.	3.9	11
48	Enhanced Heat Transfer Using Microporous Copper Inverse Opals. Journal of Electronic Packaging, Transactions of the ASME, 2018, 140, .	1.8	11
49	Thermoelectric Characterization and Power Generation Using a Silicon-on-Insulator Substrate. Journal of Microelectromechanical Systems, 2012, 21, 4-6.	2.5	10
50	Thermal conductivity measurements on suspended diamond membranes using picosecond and femtosecond time-domain thermoreflectance. , 2017, , .		10
51	Thermal Conductivity Measurements and Modeling of Phase-Change Ge ₂ Sb ₂ Te ₅ Materials. Nanoscale and Microscale Thermophysical Engineering, 2009, 13, 88-98.	2.6	9
52	Effect of thermal cycling on commercial thermoelectric modules. , 2012, , .		9
53	Thermal conduction normal to thin silicon nitride films on diamond and GaN. , 2014, , .		8
54	Cross-Plane Phonon Conduction in Polycrystalline Silicon Films. Journal of Heat Transfer, 2015, 137, .	2.1	8

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55	Modular heat sink for chip-scale GaN transistors in multilevel converters. , 2018, , .		8
56	Tunable, passive thermal regulation through liquid to vapor phase change. Applied Physics Letters, 2019, 115, .	3.3	8
57	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.	8.0	8
58	A parametric study of Microporous Metal Matrix-Phase Change Material composite heat spreaders for transient thermal applications. , 2014, , .		7
59	Thermal Characterization of Metalâ€“Oxide Interfaces Using Time-Domain Thermoreflectance with Nanograting Transducers. ACS Applied Materials & Interfaces, 2021, 13, 58059-58065.	8.0	7
60	Chip-scale thermal energy harvester using Bi ₂ Te ₃ . , 2015, , .		6
61	Microfluidic Heat Exchangers for High Power Density GaN on SiC. , 2014, , .		5
62	Anisotropic and nonhomogeneous thermal conduction in 1 µm thick CVD diamond. , 2014, , .		5
63	The Heat Conduction Renaissance. , 2018, , .		5
64	A method for quantifying in plane permeability of porous thin films. Journal of Colloid and Interface Science, 2018, 530, 667-674.	9.4	5
65	Thermal Interface Enhancement via Inclusion of an Adhesive Layer Using Plasma-Enhanced Atomic Layer Deposition. ACS Applied Materials & Interfaces, 2021, 13, 21905-21913.	8.0	5
66	Simultaneous thickness and thermal conductivity measurements of thinned silicon from 100â€“nm to 17â€“m. Applied Physics Letters, 2021, 118, .	3.3	5
67	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	4
68	Experimental Investigation of Scaling Effect on Thermal Transport in Nanoscale Hot Spots. Nanoscale and Microscale Thermophysical Engineering, 2009, 13, 203-217.	2.6	4
69	Considerations and Challenges for Large Area Embedded Micro-channels with 3D Manifold in High Heat Flux Power Electronics Applications. , 2020, , .		4
70	Nonâ€“Contact Mass Density and Thermal Conductivity Measurements of Organic Thin Films Using Frequencyâ€“Domain Thermoreflectance. Advanced Materials Interfaces, 2022, 9, .	3.7	4
71	Decoupled thermal resistances of phase change material and their impact on PCM devices. , 2010, , .		3
72	Mechanical and thermal properties of copper inverse opals for two-phase convection enhancement. , 2014, , .		3

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73	Phase-separation of wetting fluids using nanoporous alumina membranes and micro-glass capillaries. , 2014, , .		3
74	Optimization of hybrid wick structures for extreme spreading in high performance vapor chambers. , 2016, , .		3
75	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, .	1.8	3
76	Thermal conductivity, anisotropy, and interface resistances of diamond on poly-AlN. , 2012, , .		2
77	Nanoscale conformable coatings for enhanced thermal conduction of carbon nanotube films. , 2012, , .		2
78	Analytical model of graphene-enabled ultra-low power phase change memory. , 2016, , .		2
79	Microfabrication Challenges for Silicon-based Large Area (>500 mm ²) 3D-manifolded Embedded Microcooler Devices for High Heat Flux Removal. , 2020, , .		2
80	Thermal and Manufacturing Design Considerations for Silicon-Based Embedded Microchannel-Three-Dimensional Manifold Coolersâ€”Part 2: Parametric Study of EMMCs for High Heat Flux ($\sim 1 \text{ MW/cm}^2$) Power Electronics Cooling. Journal of Electronic Packaging, Transactions of the ASME, 2020, 142, .	1.8	2
81	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, .	1.8	2
82	Multiobjective Optimization of Graded, Hybrid Micropillar Wicks for Capillary-Fed Evaporation. Langmuir, 2022, 38, 221-230.	3.5	2
83	Comparison of thermal response of GMR sensor subjected to HBM and CDM transients. , 2004, , .		1
84	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
85	Measurement of anisotropy in the thermal conductivity of Ge₂Sb₂Te₅ films. , 2009, , .		1
86	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.	1.8	0
87	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
88	Calibration methodology for interposing liquid coolants for infrared thermography of microprocessors. , 2012, , .		0
89	Impact of Annealing on the Thermoelectric Properties of Ge ₂ Sb ₂ Te ₅ Films. Materials Research Society Symposia Proceedings, 2012, 1490, 223-228.	0.1	0
90	Special Section on InterPACK 2015. Journal of Electronic Packaging, Transactions of the ASME, 2016, 138, .	1.8	0

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91	Thermal Management Research “ from Power Electronics to Portables. , 2018, , .		0
92	Mechanical Design and Reliability of Gold-Tin Eutectic Bonding for Silicon-based Thermal Management Devices. , 2020, , .		0