

# Heat transfer enhancement using Al<sub>2</sub>O<sub>3</sub> “water nanofluid” system

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Citation Report

#	ARTICLE	IF	CITATIONS
1	Influence of SDBS on stability of Al <sub>2</sub> O <sub>3</sub> nano-suspensions. Proceedings of SPIE, 2007, 6831, 164.	0.8	0
2	Effect of thermophysical properties models on the predicting of the convective heat transfer coefficient for low concentration nanofluid. International Communications in Heat and Mass Transfer, 2008, 35, 1320-1326.	2.9	211
3	Experimental investigation of titanium nanofluids on the heat pipe thermal efficiency. International Communications in Heat and Mass Transfer, 2008, 35, 1316-1319.	2.9	212
4	Experimental Convective Heat Transfer With Nanofluids. , 2008, , .		0
5	Measurement of the specific heat capacity of water-based Al <sub>2</sub> O <sub>3</sub> nanofluid. Applied Physics Letters, 2008, 92, .	1.5	501
6	Experimental study of convective heat transfer and pressure loss of SiO <sub>2</sub> /water nanofluids Part 1: Nanofluid characterization - Imposed wall temperature. , 2008, , .		5
7	NanoFluidsâ€”A New Promising Fluid for Cooling. Transactions of the Indian Ceramic Society, 2009, 68, 1-17.	0.4	44
8	Nanofluids: From Vision to Reality Through Research. Journal of Heat Transfer, 2009, 131, .	1.2	514
9	Convective Heat Transfer for Water-Based Alumina Nanofluids in a Single 1.02-mm Tube. Journal of Heat Transfer, 2009, 131, .	1.2	39
10	Heat pipe efficiency enhancement with refrigerantâ€”nanoparticles mixtures. Energy Conversion and Management, 2009, 50, 772-776.	4.4	154
11	Thermally enhanced solubility for the shrinking of a nanoink droplet in a surrounding liquid. International Journal of Heat and Mass Transfer, 2009, 52, 222-231.	2.5	4
12	Laminar convective heat transfer and viscous pressure loss of aluminaâ€”water and zirconiaâ€”water nanofluids. International Journal of Heat and Mass Transfer, 2009, 52, 2042-2048.	2.5	436
13	Numerical study of turbulent flow and heat transfer characteristics of nanofluids considering variable properties. International Journal of Thermal Sciences, 2009, 48, 290-302.	2.6	330
14	Effect of nanofluids on the performance of a miniature plate heat exchanger with modulated surface. International Journal of Heat and Fluid Flow, 2009, 30, 691-699.	1.1	219
15	Effect of particle size on the convective heat transfer in nanofluid in the developing region. International Journal of Heat and Mass Transfer, 2009, 52, 2189-2195.	2.5	516
16	Heat transfer enhancement and pressure drop characteristics of TiO <sub>2</sub> â€”water nanofluid in a double-tube counter flow heat exchanger. International Journal of Heat and Mass Transfer, 2009, 52, 2059-2067.	2.5	440
17	Investigating the efficacy of nanofluids as coolants in plate heat exchangers (PHE). Chemical Engineering Science, 2009, 64, 3290-3300.	1.9	280
18	An experimental study of a confined and submerged impinging jet heat transfer using Al <sub>2</sub> O <sub>3</sub> -water nanofluid. International Journal of Thermal Sciences, 2009, 48, 401-411.	2.6	128

#	ARTICLE	IF	CITATIONS
19	Experimental investigation of nanofluids in confined laminar radial flows. International Journal of Thermal Sciences, 2009, 48, 1486-1493.	2.6	155
20	Numerical study of developing laminar forced convection of a nanofluid in an annulus. International Journal of Thermal Sciences, 2009, 48, 2119-2129.	2.6	186
21	Numerical investigation into the convective heat transfer of TiO <sub>2</sub> nanofluids flowing through a straight tube under the laminar flow conditions. Applied Thermal Engineering, 2009, 29, 1965-1972.	3.0	236
22	A Review of Heat Transfer in Nanofluids. Advances in Heat Transfer, 2009, 41, 81-197.	0.4	86
23	Characterization of surface tension and contact angle of nanofluids. Proceedings of SPIE, 2009, , .	0.8	17
24	Analysis of Heat Transfer Enhancement in Minichannel Heat Sinks With Turbulent Flow Using H <sub>2</sub> O-Al <sub>2</sub> O <sub>3</sub> Nanofluids. Journal of Electronic Packaging, Transactions of the ASME, 2009, 131, .	1.2	4
25	Nanofluid Properties and Their Effects on Convective Heat Transfer in an Electronics Cooling Application. Journal of Thermal Science and Engineering Applications, 2009, 1, .	0.8	16
26	Developing laminar mixed convection of nanofluids in an inclined tube with uniform wall heat flux. International Journal of Numerical Methods for Heat and Fluid Flow, 2009, 19, 146-164.	1.6	35
27	Heat transfer and friction factor analysis in a circular tube with Al <sub>2</sub> O <sub>3</sub> nanofluid by using computational fluid dynamics. International Journal of Nanoparticles, 2009, 2, 191.	0.1	10
28	A Review of Thermal Conductivity Data, Mechanisms and Models for Nanofluids. International Journal of Micro-nano Scale Transport, 2010, 1, 269-322.	0.2	181
29	Hybrid liquid metal-water cooling system for heat dissipation of high power density microdevices. Heat and Mass Transfer, 2010, 46, 1327-1334.	1.2	45
30	Flow-boiling heat transfer of R-134a-based nanofluids in a horizontal tube. International Journal of Heat and Mass Transfer, 2010, 53, 944-951.	2.5	179
31	Heat transfer enhancement of copper-water nanofluids in a lid-driven enclosure. Communications in Nonlinear Science and Numerical Simulation, 2010, 15, 1501-1510.	1.7	205
32	Intriguingly high convective heat transfer enhancement of nanofluid coolants in laminar flows. Physics Letters, Section A: General, Atomic and Solid State Physics, 2010, 374, 2566-2568.	0.9	59
33	Laminar heat transfer of non-Newtonian nanofluids in a circular tube. Korean Journal of Chemical Engineering, 2010, 27, 1391-1396.	1.2	39
34	Experimental investigation into the convective heat transfer and system-level effects of Al <sub>2</sub> O <sub>3</sub> -propanol nanofluid. Journal of Nanoparticle Research, 2010, 12, 1003-1014.	0.8	102
35	Enhancement of heat transfer using nanofluids—An overview. Renewable and Sustainable Energy Reviews, 2010, 14, 629-641.	8.2	697
36	Numerical study of turbulent forced convection flow of nanofluids in a long horizontal duct considering variable properties. International Communications in Heat and Mass Transfer, 2010, 37, 1426-1431.	2.9	88

#	ARTICLE	IF	CITATIONS
37	An experimental study on the heat transfer performance and pressure drop of TiO <sub>2</sub> -water nanofluids flowing under a turbulent flow regime. International Journal of Heat and Mass Transfer, 2010, 53, 334-344.	2.5	582
38	Development of new correlations for convective heat transfer and friction factor in turbulent regime for nanofluids. International Journal of Heat and Mass Transfer, 2010, 53, 4607-4618.	2.5	362
39	Experimental studies on heat transfer and friction factor characteristics of Al <sub>2</sub> O <sub>3</sub> /water nanofluid in a circular pipe under laminar flow with wire coil inserts. Experimental Thermal and Fluid Science, 2010, 34, 122-130.	1.5	207
40	Local convective boiling heat transfer and pressure drop of nanofluid in narrow rectangular channels. Applied Thermal Engineering, 2010, 30, 2619-2631.	3.0	78
41	Comparison of the effects of measured and computed thermophysical properties of nanofluids on heat transfer performance. Experimental Thermal and Fluid Science, 2010, 34, 616-624.	1.5	97
42	Recent Advancement on Liquid Metal Cooling for Thermal Management of Computer Chip. , 2010, , .		3
43	Thermal Performance of cylindrical Heat Pipe Using Nanofluids. Journal of Thermophysics and Heat Transfer, 2010, 24, 796-802.	0.9	52
44	The Study of the Effects of Thermophoretic and Brownian Forces on Nanofluid Thermal Conductivity Using Lagrangian and Eulerian Approach. Nanoscale and Microscale Thermophysical Engineering, 2010, 14, 187-208.	1.4	9
45	Design of Practical Liquid Metal Cooling Device for Heat Dissipation of High Performance CPUs. Journal of Electronic Packaging, Transactions of the ASME, 2010, 132, .	1.2	55
46	Particle size and interfacial effects on thermo-physical and heat transfer characteristics of water-based SiC nanofluids. Nanotechnology, 2010, 21, 215703.	1.3	220
47	Experimental Investigation of Heat Transfer Enhancement of the Heat Pipe Using CuO-Water Nanofluid. Advanced Materials Research, 0, 160-162, 507-512.	0.3	5
48	Thermal efficiency of heat pipe with alumina nanofluid. Journal of Alloys and Compounds, 2010, 504, S380-S384.	2.8	63
49	Performance of overall heat transfer in multi-channel heat exchanger by alumina nanofluid. Journal of Alloys and Compounds, 2010, 504, S385-S388.	2.8	37
50	A Comparison on the Heat Transfer and Flow Characteristics of TiO <sub>2</sub> -Water Nanofluids Having Two Different Chemical Agents. , 2010, , .		0
51	A Study of the Thermal-Hydraulic Performance and System-Level Effects of Aluminum Oxide-Propanol Nanofluid. , 2010, , .		1
52	Nanofluids in a forced-convection liquid cooling system - benefits and design challenges -. , 2010, , .		2
53	Experimental Studies on Heat Transfer and Friction Factor Characteristics of Al <sub>2</sub> O <sub>3</sub> /Water Nanofluid in a Circular Pipe Under Transition Flow With Wire Coil Inserts. Heat Transfer Engineering, 2011, 32, 485-496.	1.2	41
54	Pressure drop of TiO <sub>2</sub> nanofluid in circular pipes. Particuology, 2011, 9, 486-491.	2.0	51

#	ARTICLE	IF	CITATIONS
55	Nanofluids and Their Properties. Applied Mechanics Reviews, 2011, 64, .	4.5	60
56	Stability Analysis of Water-Based Nanofluids Prepared by Using Supersonic Dispersion Method. Advanced Materials Research, 0, 383-390, 6174-6180.	0.3	3
57	A review of experimental investigations on thermal phenomena in nanofluids. Nanoscale Research Letters, 2011, 6, 377.	3.1	98
58	Al <sub>2</sub> O <sub>3</sub> -based nanofluids: a review. Nanoscale Research Letters, 2011, 6, 456.	3.1	187
59	Performance evaluation on an air-cooled heat exchanger for alumina nanofluid under laminar flow. Nanoscale Research Letters, 2011, 6, 488.	3.1	23
60	Anomalous enhancement in thermal conductivity of nanofluid induced by solid walls in a nanochannel. Applied Thermal Engineering, 2011, 31, 3799-3805.	3.0	39
61	Enhancement of heat transfer from hot water by co-flowing it with mercury in a mini-channel. International Communications in Heat and Mass Transfer, 2011, 38, 1073-1073.	2.9	8
62	Experimental study of heat transfer enhancement using water/ethylene glycol based nanofluids as a new coolant for car radiators. International Communications in Heat and Mass Transfer, 2011, 38, 1283-1290.	2.9	304
63	Experiments to Explore the Mechanisms of Heat Transfer in Nanocrystalline Alumina/Water Nanofluid under Laminar and Turbulent Flow Conditions. Experimental Heat Transfer, 2011, 24, 234-256.	2.3	24
64	An experimental investigation of turbulent thermal convection in water-based alumina nanofluid. Physics of Fluids, 2011, 23, .	1.6	38
65	Numerical study of nanofluid mixed convection in a horizontal curved tube using two-phase approach. Heat and Mass Transfer, 2011, 47, 107-118.	1.2	25
66	Laminar convective heat transfer of non-Newtonian nanofluids with constant wall temperature. Heat and Mass Transfer, 2011, 47, 203-209.	1.2	39
67	Hydraulic and heat transfer study of SiO <sub>2</sub> /water nanofluids in horizontal tubes with imposed wall temperature boundary conditions. International Journal of Heat and Fluid Flow, 2011, 32, 424-439.	1.1	147
68	Comparative study on thermal performance of helical screw tape inserts in laminar flow using Al <sub>2</sub> O <sub>3</sub> /water and CuO/water nanofluids. Superlattices and Microstructures, 2011, 49, 608-622.	1.4	73
69	Round-robin test on thermal conductivity measurement of ZnO nanofluids and comparison of experimental results with theoretical bounds. Nanoscale Research Letters, 2011, 6, 258.	3.1	15
70	Application of nanofluids to a heat pipe liquid-block and the thermoelectric cooling of electronic equipment. Experimental Thermal and Fluid Science, 2011, 35, 1274-1281.	1.5	137
71	Turbulent forced convection heat transfer of non-Newtonian nanofluids. Experimental Thermal and Fluid Science, 2011, 35, 1351-1356.	1.5	84
72	Convective heat transfer of non-Newtonian nanofluids through a uniformly heated circular tube. International Journal of Thermal Sciences, 2011, 50, 525-531.	2.6	110

#	ARTICLE	IF	CITATIONS
73	Improving the cooling performance of automobile radiator with Al <sub>2</sub> O <sub>3</sub> /water nanofluid. Applied Thermal Engineering, 2011, 31, 1833-1838.	3.0	268
74	The micro-tube heat transfer and fluid flow of water based Al <sub>2</sub> O <sub>3</sub> nanofluid with viscous dissipation. International Communications in Heat and Mass Transfer, 2011, 38, 704-710.	2.9	28
75	Effect of nanoparticle size on nucleate pool boiling heat transfer of refrigerant/oil mixture with nanoparticles. International Journal of Heat and Mass Transfer, 2011, 54, 1839-1850.	2.5	75
76	A review on applications and challenges of nanofluids. Renewable and Sustainable Energy Reviews, 2011, 15, 1646-1668.	8.2	1,521
77	Dual plasma synthesis and characterization of a stable copper-ethylene glycol nanofluid. Powder Technology, 2011, 210, 132-142.	2.1	34
78	Nanofluid augmented coolant rail thermoelectric cooling of electronic systems; Modeling and analysis. , 2011, , .		5
79	Numerical Investigation of the Effects of Nanoparticle Diameter on Velocity Field and Nanoparticle Distribution of Nanofluid Using Lagrangian-Eulerian Approach. Journal of Dispersion Science and Technology, 2011, 32, 1311-1317.	1.3	26
80	Numerical analysis of heat transfer enhancement with the use of Al <sub>2</sub> O <sub>3</sub> /water nanofluid and longitudinal ribs in a curved duct. Thermal Science, 2012, 16, 469-480.	0.5	14
81	Application of Nanofluids in Heat Transfer. , 0, , .		46
83	Nanofluids mediating surface forces. Advances in Colloid and Interface Science, 2012, 179-182, 68-84.	7.0	47
84	Lattice Boltzmann simulation of mixed convection heat transfer in a corrugated wall cavity utilizing water-based nanofluids. Heat Transfer - Asian Research, 2012, 41, 649-665.	2.8	15
85	A numerical study on the use of liquid metals (gallium and mercury) as agents to enhance heat transfer from hot water in a co-flow mini-channel system. Heat and Mass Transfer, 2012, 48, 1735-1744.	1.2	15
86	Thermal performance of heat pipe with suspended nano-particles. Heat and Mass Transfer, 2012, 48, 1913-1920.	1.2	16
87	Nanofluid jet impingement heat transfer characteristics in the rectangular mini-fin heat sink. Journal of Engineering Physics and Thermophysics, 2012, 85, 1432-1440.	0.2	17
88	Pressure Drop of Non-Newtonian Nanofluids Flowing Through a Horizontal Circular Tube. Journal of Dispersion Science and Technology, 2012, 33, 1066-1070.	1.3	12
89	Mechanism Analysis on Performance Enhancement of Ammonia Bubble Absorption by Nanofluid. Advanced Materials Research, 0, 433-440, 195-201.	0.3	2
90	Enhancing performance of a radiator of electronic cooling system using Carbon Nanotube based nanofluids. , 2012, , .		1
91	Thermal performance and pressure drop analysis of nanofluids in turbulent forced convective flows. International Journal of Thermal Sciences, 2012, 60, 236-243.	2.6	61

#	ARTICLE	IF	CITATIONS
92	Effects of heat generation/absorption on stagnation point flow of nanofluid over a surface with convective boundary conditions. Communications in Nonlinear Science and Numerical Simulation, 2012, 17, 4210-4223.	1.7	157
93	The Potential Impact of Nanofluid Enhancements on the Performance of Heat Exchangers. Heat Transfer Engineering, 2012, 33, 31-41.	1.2	16
94	An overview on heat transfer augmentation using vortex generators and nanofluids: Approaches and applications. Renewable and Sustainable Energy Reviews, 2012, 16, 5951-5993.	8.2	158
95	Heat Transfer of TiO <sub>2</sub> /Water Nanofluid in a Coiled Agitated Vessel with Propeller. Journal of Hydrodynamics, 2012, 24, 942-950.	1.3	26
96	Use of $\text{Al}_2\text{O}_3/\text{Cu}$ /Water Hybrid Nanofluid in an Electronic Heat Sink. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2012, 2, 1600-1607.	1.4	110
97	NANOFUID BIOCONVECTION IN POROUS MEDIA: OXYTACTIC MICROORGANISMS. Journal of Porous Media, 2012, 15, 233-248.	1.0	41
98	Convective performance of CuO/water nanofluid in an electronic heat sink. Experimental Thermal and Fluid Science, 2012, 40, 57-63.	1.5	157
99	Experimental thermal-hydraulic evaluation of CuO nanofluids in microchannels at various concentrations with and without suspension enhancers. International Journal of Heat and Mass Transfer, 2012, 55, 2684-2691.	2.5	61
100	A dispersion model for predicting the heat transfer performance of TiO <sub>2</sub> -water nanofluids under a laminar flow regime. International Journal of Heat and Mass Transfer, 2012, 55, 3138-3146.	2.5	13
101	A review and analysis on influence of temperature and concentration of nanofluids on thermophysical properties, heat transfer and pumping power. International Journal of Heat and Mass Transfer, 2012, 55, 4063-4078.	2.5	308
102	Analysis of entropy generation and convective heat transfer of Al <sub>2</sub> O <sub>3</sub> nanofluid flow in a tangential micro heat sink. International Journal of Heat and Mass Transfer, 2012, 55, 4366-4375.	2.5	94
103	Assessment of heat dissipation performance for nanofluid. Applied Thermal Engineering, 2012, 32, 132-140.	3.0	47
104	Computational analysis of nanofluid effects on convective heat transfer enhancement of micro-pin-fin heat sinks. International Journal of Thermal Sciences, 2012, 58, 168-179.	2.6	120
105	Mechanisms proposed through experimental investigations on thermophysical properties and forced convective heat transfer characteristics of various nanofluids – A review. Renewable and Sustainable Energy Reviews, 2012, 16, 3917-3938.	8.2	150
106	Solvothermal synthesis and electrical conductivity model for the zinc oxide-insulated oil nanofluid. Physics Letters, Section A: General, Atomic and Solid State Physics, 2012, 376, 1053-1057.	0.9	57
107	Nanofluid impingement jet heat transfer. Nanoscale Research Letters, 2012, 7, 139.	3.1	56
108	Characterization of dispersed and aggregated Al <sub>2</sub> O <sub>3</sub> morphologies for predicting nanofluid thermal conductivities. Journal of Nanoparticle Research, 2013, 15, 1.	0.8	19
109	Solar energy harvesting with the application of nanotechnology. Renewable and Sustainable Energy Reviews, 2013, 26, 837-852.	8.2	185

#	ARTICLE	IF	CITATIONS
110	Analysis of a platform for thermal management studies of microelectronics cooling methods. Applied Thermal Engineering, 2013, 60, 88-95.	3.0	12
111	Heat transfer and flow features of Al <sub>2</sub> O <sub>3</sub> -water nanofluids flowing through a circular microchannel – Experimental results and correlations. Applied Thermal Engineering, 2013, 61, 86-92.	3.0	61
112	Laminar Convective Heat Transfer and Pressure Drop of TiO <sub>2</sub> /Turbine Oil Nanofluid. Journal of Thermophysics and Heat Transfer, 2013, 27, 127-133.	0.9	23
113	Nanofluid implementation for heat transfer augmentation of magneto hydrodynamic flows in a lid-driven cavity using experimental-based correlations. International Journal of Applied Electromagnetics and Mechanics, 2013, 42, 589-602.	0.3	14
114	Boiling local heat transfer enhancement in minichannels using nanofluids. Nanoscale Research Letters, 2013, 8, 130.	3.1	33
115	Non-homogeneous model for a side heated square cavity filled with a nanofluid. International Journal of Heat and Fluid Flow, 2013, 44, 327-335.	1.1	36
116	Investigations of effect of radial flow impeller type swirl generator fitted in an electronic heat sink and Al <sub>2</sub> O <sub>3</sub> /water nanofluid on heat transfer enhancement. Chemical Engineering and Processing: Process Intensification, 2013, 72, 103-112.	1.8	12
117	Experimental studies on the heat transfer and pressure drop characteristics of Cu-water and Al-water nanofluids in a spiral coil. Experimental Thermal and Fluid Science, 2013, 47, 206-212.	1.5	68
118	Experimental study on the enhancement of heat transfer between water interfaced with higher thermal conductivity liquid. International Communications in Heat and Mass Transfer, 2013, 45, 95-99.	2.9	7
119	Solid-liquid phase transition of nanofluids. International Journal of Heat and Mass Transfer, 2013, 59, 29-34.	2.5	9
120	Experimental and CFD Heat Transfer Studies of Al <sub>2</sub> O <sub>3</sub> -Water Nanofluid in a Coiled Agitated Vessel Equipped with Propeller. Chinese Journal of Chemical Engineering, 2013, 21, 1232-1243.	1.7	26
121	Heat Transfer Enhancement With Iron Oxide Nanoparticle Based Ferrofluids. , 2013, , .		0
122	Characteristics of heat transfer and fluid flow in microtube and microchannel using conventional fluids and nanofluids: A review. Renewable and Sustainable Energy Reviews, 2013, 28, 848-880.	8.2	153
123	Numerical solution of a thermal instability problem in a rotating nanofluid layer. International Journal of Heat and Mass Transfer, 2013, 63, 313-322.	2.5	73
124	Performance evaluation of a hybrid cooling system for electronic chips. Experimental Thermal and Fluid Science, 2013, 45, 155-162.	1.5	28
125	A review of the applications of nanofluids in solar energy. International Journal of Heat and Mass Transfer, 2013, 57, 582-594.	2.5	1,081
126	Heat transfer characteristics of nanofluid through circular tube. Journal of Central South University, 2013, 20, 142-148.	1.2	13
127	Heat transfer characteristics of nanofluids in heat pipes: A review. Renewable and Sustainable Energy Reviews, 2013, 20, 397-410.	8.2	142

#	ARTICLE	IF	CITATIONS
128	Analysis of nanoparticles migration on natural convective heat transfer of nanofluids. International Journal of Thermal Sciences, 2013, 68, 79-93.	2.6	59
129	Optimization and Evaluation of a High-Performance Liquid Metal CPU Cooling Product. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2013, 3, 1171-1177.	1.4	21
130	Numerical and Experimental Investigation of Heat Transfer of $\text{Al}_2\text{O}_3/\text{Water}$ Nanofluid in Double Pipe and Shell and Tube Heat Exchangers. Numerical Heat Transfer; Part A: Applications, 2013, 63, 941-958.	1.2	68
131	Experimental investigation of diameter effect on heat transfer performance and pressure drop of $\text{TiO}_2$ -water nanofluid. Experimental Thermal and Fluid Science, 2013, 44, 520-533.	1.5	167
132	Experimental study of overall heat transfer coefficient in the application of dilute nanofluids in the car radiator. Applied Thermal Engineering, 2013, 52, 8-16.	3.0	181
133	Heat transfer of nanofluids in the mini-rectangular fin heat sinks. International Communications in Heat and Mass Transfer, 2013, 40, 25-31.	2.9	80
134	Nanofluids including ceramic and other nanoparticles: applications and rheological properties. , 2013, , 323-345.		1
135	Promising Technology for Electronic Cooling: Nanofluidic Micro Pulsating Heat Pipes. Journal of Electronic Packaging, Transactions of the ASME, 2013, 135, .	1.2	35
136	Heat Transfer of Aluminium-Oxide Nanofluids in a Compact Heat Exchanger. Applied Mechanics and Materials, 0, 465-466, 622-628.	0.2	4
137	Effect of Process Parameters on the Cooling Performance of Liquid Cooling System for Electronic Application. Advanced Materials Research, 2013, 795, 591-596.	0.3	0
138	HEAT TRANSFER CHARACTERISTICS OF $\text{TiO}_2/\text{WATER}$ NANOFLUID IN A COILED AGITATED VESSEL PROVIDED WITH DISK TURBINE AGITATOR. Chemical Engineering Communications, 2013, 200, 783-797.	1.5	7
139	The Effect of Particle Concentration on Cooling of a Circular Horizontal Surface Using Nanofluid Jets. Nanoscale and Microscale Thermophysical Engineering, 2013, 17, 154-171.	1.4	22
140	Nanofluids for Thermal Performance Improvement in Cooling of Electronic Device. Advanced Materials Research, 2013, 832, 218-223.	0.3	16
141	Replacement of heat sink fan by nanocoolants for enhancement of CPU efficiency. , 2013, , .		1
142	Mixed Convection in Double Lid-Driven Enclosures Filled with $\text{Al}_2\text{O}_3$ -Water Nanofluid. Journal of Thermophysics and Heat Transfer, 2013, 27, 707-718.	0.9	12
143	Numerical Study of Nanofluids Flow Characteristics Using LES-Lagrange Method and Molecular Dynamics Simulation. , 2013, , .		2
144	Review on Nanomaterials for Thermal Energy Storage Technologies. Nanoscience and Nanotechnology - Asia, 2013, 3, 60-71.	0.3	47
145	Thermal Management of Vehicular Payloads Using Nanofluid Augmented Coolant Rail - Modeling and Analysis. SAE International Journal of Alternative Powertrains, 0, 2, 194-203.	0.8	15

#	ARTICLE	IF	CITATIONS
146	Influence of Variable Thermal Conductivity on MHD Boundary Layer Slip Flow of Ethylene-Glycol Based Cu Nanofluids over a Stretching Sheet with Convective Boundary Condition. International Journal of Engineering Mathematics, 2014, 2014, 1-10.	0.2	29
147	Effect of Twisted-Tape Turbulators and Nanofluid on Heat Transfer in a Double Pipe Heat Exchanger. Journal of Engineering (United States), 2014, 2014, 1-9.	0.5	16
148	The thermal and transport characteristics of nanofluids in a novel three-dimensional device. Canadian Journal of Chemical Engineering, 2014, 92, 2185-2201.	0.9	23
149	Preparation, thermo-physical properties and heat transfer enhancement of nanofluids. Materials Research Express, 2014, 1, 032001.	0.8	53
150	Nanofluids for electronics cooling. , 2014, , .		16
151	MHD Boundary Layer Slip Flow and Heat Transfer of Nanofluid Past a Vertical Stretching Sheet with Non-Uniform Heat Generation/Absorption. International Journal of Nanoscience, 2014, 13, 1450019.	0.4	58
152	Pressure Drop and Heat Transfer of Nanofluid in Turbulent Pipe Flow Considering Particle Coagulation and Breakage. Journal of Heat Transfer, 2014, 136, .	1.2	19
153	Performance Study of Flowing-Over PV/T System with Different Working Fluid. Applied Mechanics and Materials, 0, 488-489, 1173-1176.	0.2	11
154	Heat Transfer of Nanofluid in a Double Pipe Heat Exchanger. International Scholarly Research Notices, 2014, 2014, 1-7.	0.9	31
155	Heat Transfer Enhancement Characteristics of Al <sub>2</sub> O <sub>3</sub> /Water and CuO/Water Nanofluids in a Tube in Tube Condenser Fitted With an Air Conditioning System—An Experimental Comparison. Journal of Thermal Science and Engineering Applications, 2014, 6, .	0.8	9
156	Multiwalled Carbon Nanotube Nanofluid for Thermal Management of High Heat Generating Computer Processor. Heat Transfer - Asian Research, 2014, 43, 653-666.	2.8	52
157	Viscosity of Aluminium Oxide (Al <sub>2</sub> O <sub>3</sub> ) Nanoparticle Dispersed in Ethylene Glycol. Applied Mechanics and Materials, 0, 660, 735-739.	0.2	9
158	An experimental investigation of heat transfer enhancement of a minichannel heat sink using Al <sub>2</sub> O <sub>3</sub> -H <sub>2</sub> O nanofluid. International Journal of Heat and Mass Transfer, 2014, 74, 164-172.	2.5	161
159	Molecular dynamics simulations of Kapitza length for argon-silicon and water-silicon interfaces. International Journal of Precision Engineering and Manufacturing, 2014, 15, 323-329.	1.1	45
160	Water cooled minichannel heat sinks for microprocessor cooling: Effect of fin spacing. Applied Thermal Engineering, 2014, 64, 76-82.	3.0	155
161	Experimental studies on the convective heat transfer performance and thermophysical properties of MgO-water nanofluid under turbulent flow. Experimental Thermal and Fluid Science, 2014, 52, 68-78.	1.5	216
162	A lattice Boltzmann simulation of enhanced heat transfer of nanofluids. International Communications in Heat and Mass Transfer, 2014, 55, 113-120.	2.9	27
163	Effect of silicon nanorod length on horizontal nanostructured plates in pool boiling heat transfer with water. International Journal of Thermal Sciences, 2014, 82, 111-121.	2.6	49

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164	Nanofluids as a potential solution for Minimum Quantity Lubrication: A review. Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, 2014, 228, 3-20.	1.5	54
165	Friction factor and heat transfer of nanofluids containing cylindrical nanoparticles in laminar pipe flow. Journal of Applied Physics, 2014, 116, 133513.	1.1	16
166	Novel flow behaviors induced by a solid particle in nanochannels: Poiseuille and Couette. Science Bulletin, 2014, 59, 2478-2485.	1.7	10
167	Experimental study of Al <sub>2</sub> O <sub>3</sub> /water nanofluid turbulent heat transfer enhancement in the horizontal double pipes fitted with modified twisted tapes. International Journal of Heat and Mass Transfer, 2014, 78, 1042-1054.	2.5	99
168	Heat transfer enhancement in a vertical tube confining two immiscible falling co-flows. International Journal of Thermal Sciences, 2014, 85, 138-150.	2.6	10
169	Intensification of convective heat transfer in water/ethylene glycol based nanofluids containing TiO <sub>2</sub> nanoparticles. Chemical Engineering and Processing: Process Intensification, 2014, 82, 123-131.	1.8	91
170	Energy and exergy analysis of alumina-water nanofluid for an electronic liquid cooling system. International Communications in Heat and Mass Transfer, 2014, 57, 118-127.	2.9	68
171	Experimental study on the thermal performance and efficiency of a copper made thermosyphon heat pipe charged with alumina-glycol based nanofluids. Powder Technology, 2014, 266, 378-387.	2.1	77
172	Experimental Study of Heat Transfer of a Car Radiator with CuO/Ethylene Glycol-Water as a Coolant. Journal of Dispersion Science and Technology, 2014, 35, 677-684.	1.3	114
173	Performance of water based CuO and Al <sub>2</sub> O <sub>3</sub> nanofluids in a Cu-Be alloy heat sink with rectangular microchannels. Energy Conversion and Management, 2014, 86, 28-38.	4.4	132
174	Comparing the thermal performance of water, Ethylene Glycol, Alumina and CNT nanofluids in CPU cooling: Experimental study. Experimental Thermal and Fluid Science, 2014, 57, 371-377.	1.5	115
175	Heat transfer enhancement in a PV cell using Boehmite nanofluid. Energy Conversion and Management, 2014, 86, 275-285.	4.4	125
176	Enhancement of Heat Transfer Coefficient in an Automobile Radiator Using Multi Walled Carbon Nano Tubes (MWCNTS). , 2014, , .		4
177	Continuum mathematics at the nanoscale. Journal of Mathematics in Industry, 2014, 4, 11.	0.7	2
178	Application of Nanofluids as Coolant in Automobile Radiator – An Overview. Applied Mechanics and Materials, 0, 766-767, 337-342.	0.2	3
179	Go-water nanofluid inside semi porous channel: analytical investigation. World Journal of Engineering, 2015, 12, 103-108.	1.0	8
180	Study of heat transfer due to turbulent flow of nanofluids through rib-groove channel. IOP Conference Series: Materials Science and Engineering, 2015, 88, 012017.	0.3	0
181	Experimental Evaluation of Heat Transfer Rate in Automobile Cooling System by Using Nanofluids. , 2015, , .		4

#	ARTICLE	IF	CITATIONS
182	Investigation on Thermal Studies of Nanofluids Related to Their Applications. Heat Transfer - Asian Research, 2015, 44, 420-449.	2.8	4
183	Pressure drop and convective heat transfer of Al <sub>2</sub> O <sub>3</sub> /water and MWCNT/water nanofluids in a chevron plate heat exchanger. International Journal of Heat and Mass Transfer, 2015, 89, 620-626.	2.5	127
184	Heat transfer enhancement using air-atomized spray cooling with water-Al <sub>2</sub> O <sub>3</sub> nanofluid. International Journal of Thermal Sciences, 2015, 96, 85-93.	2.6	53
185	Interferometric study of nanofluid-based heat transfer phenomena in compact channels. International Journal of Thermal Sciences, 2015, 96, 70-84.	2.6	14
186	MHD Stagnation Point Flow of a Nanofluid with Velocity Slip, Non-linear Radiation and Newtonian Heating. Procedia Engineering, 2015, 127, 1010-1017.	1.2	19
187	Enhancement heat transfer characteristics in the channel with Trapezoidal rib-groove using nanofluids. Case Studies in Thermal Engineering, 2015, 5, 48-58.	2.8	74
188	Phase-dependent thermophysical properties of $\alpha$ - and $\beta$ -Al <sub>2</sub> O <sub>3</sub> in aqueous suspension. Journal of Industrial and Engineering Chemistry, 2015, 25, 99-104.	2.9	6
189	Synthesis and experimental investigation of the electrical conductivity of water based magnetite nanofluids. Powder Technology, 2015, 274, 426-430.	2.1	45
190	Effect of Volume Fraction of Al <sub>2</sub> O <sub>3</sub> Nanofluid on Heat Transfer Enhancement in a Concentric Tube Heat Exchanger. Heat Transfer Engineering, 2015, 36, 1387-1396.	1.2	17
191	Experimental Study of CuO/Water Nanofluid Turbulent Convective Heat Transfer in Square Cross-section Duct. Experimental Heat Transfer, 2015, 28, 282-297.	2.3	38
192	Laminar forced convection of a nanofluid in a microchannel: Effect of flow inertia and external forces on heat transfer and fluid flow characteristics. Applied Thermal Engineering, 2015, 78, 326-338.	3.0	52
193	Numerical simulation of natural convection between a decentered triangular heating cylinder and a square outer cylinder filled with a pure fluid or a nanofluid using the lattice Boltzmann method. Powder Technology, 2015, 277, 193-205.	2.1	38
194	Statistical Analysis of Laminar Convective Heat Transfer of MWCNT-Deionized Water Nanofluid Using the Response Surface Methodology. Numerical Heat Transfer; Part A: Applications, 2015, 68, 454-469.	1.2	23
195	Subcooled flow boiling of alumina/water nanofluid in a channel with a hot spot: An experimental study. Applied Thermal Engineering, 2015, 90, 384-394.	3.0	29
196	Numerical Investigation of Laminar Heat Transfer of Nanofluid-Cooled Mini-Rectangular Fin Heat Sinks. Journal of Engineering Physics and Thermophysics, 2015, 88, 666-675.	0.2	15
197	Interferometric study of heat transfer characteristics of Al <sub>2</sub> O <sub>3</sub> and SiO <sub>2</sub> -based dilute nanofluids under simultaneously developing flow regime in compact channels. International Journal of Heat and Mass Transfer, 2015, 88, 713-727.	2.5	37
198	Numerical Study of Nanofluid Condensation Heat Transfer in a Square Microchannel. Numerical Heat Transfer; Part A: Applications, 2015, 68, 1242-1265.	1.2	15
199	Experimental investigation of convective heat transfer augmentation using Al <sub>2</sub> O <sub>3</sub> /water nanofluid in circular pipe. Heat and Mass Transfer, 2015, 51, 1237-1246.	1.2	13

#	ARTICLE	IF	CITATIONS
200	Role of nanofluid fouling on thermal performance of a thermosyphon: Are nanofluids reliable working fluid?. Applied Thermal Engineering, 2015, 82, 212-224.	3.0	86
201	Optimization of heat transfer enhancement of nanofluid in a channel with winglet vortex generator. Applied Thermal Engineering, 2015, 91, 1116-1126.	3.0	45
202	The Effect of Water-Based Nanofluid Incorporating Al <sub>2</sub> O <sub>3</sub> Nanoparticles on Heat Pipe Performance. Energy Procedia, 2015, 75, 3201-3206.	1.8	27
203	Factors affecting the pH and electrical conductivity of MgO-ethylene glycol nanofluids. Bulletin of Materials Science, 2015, 38, 1345-1357.	0.8	38
204	Entropy analysis of unsteady magneto-nanofluid flow past accelerating stretching sheet with convective boundary condition. Applied Mathematics and Mechanics (English Edition), 2015, 36, 1593-1610.	1.9	174
205	Experimental study of heat transfer and friction factor of Al <sub>2</sub> O <sub>3</sub> nanofluid in U-tube heat exchanger with helical tape inserts. Experimental Thermal and Fluid Science, 2015, 62, 141-150.	1.5	71
206	Turbulent two phase approach model for the nanofluids heat transfer analysis flowing through the minichannel heat sinks. International Journal of Heat and Mass Transfer, 2015, 82, 388-395.	2.5	52
207	Heat Transfer Performance of Milk Pasteurization Plate Heat Exchangers Using MWCNT/Water Nanofluid. Journal of Dispersion Science and Technology, 2015, 36, 196-204.	1.3	47
208	Thermal Radiation and Heat Source Effects on a MHD Nanofluid Past a Vertical Plate in a Rotating System with Porous Medium. Heat Transfer - Asian Research, 2015, 44, 1-19.	2.8	47
209	Review of micro- and mini-channel heat sinks and heat exchangers for single phase fluids. Renewable and Sustainable Energy Reviews, 2015, 41, 1298-1311.	8.2	242
210	Experimental Studies of Nanofluid TiO <sub>2</sub> /CuO in a Heat Exchanger (Double Pipe). Indian Journal of Science and Technology, 2016, 9, .	0.5	5
211	On the reliable estimation of heat transfer coefficients for nanofluids in a microchannel. Journal of Physics: Conference Series, 2016, 745, 032078.	0.3	3
212	2D-Based Nanofluids: Materials Evaluation and Performance. , 2016, , .		0
213	Study of turbulent heat transfer of the nanofluids in a cylindrical channel. International Journal of Heat and Mass Transfer, 2016, 102, 745-755.	2.5	39
214	Investigation on the CPU nanofluid cooling. Microelectronics Reliability, 2016, 63, 159-165.	0.9	74
215	Theoretical analysis of heat transfer and friction factor for turbulent flow of nanofluids through pipes. Canadian Journal of Chemical Engineering, 2016, 94, 565-575.	0.9	12
216	Thermal conductivity enhancement of COOH-functionalized MWCNTs/ethylene glycol-water nanofluid for application in heating and cooling systems. Applied Thermal Engineering, 2016, 105, 716-723.	3.0	176
217	Experimental study of the effect of solid volume fraction and Reynolds number on heat transfer coefficient and pressure drop of CuO-Water nanofluid. Experimental Thermal and Fluid Science, 2016, 76, 342-351.	1.5	161

#	ARTICLE	IF	CITATIONS
218	Heat Transfer and Hydrodynamic Performance Analysis of a Miniature Tangential Heat Sink Using $Al_2O_3-H_2O$ and $TiO_2-H_2O$ Nanofluids. <i>Experimental Heat Transfer</i> , 2016, 29, 536-560.	2.3	20
219	Exergy and entropy generation analysis of $TiO_2$ -water nanofluid flow through the water block as an electronics device. <i>International Journal of Heat and Mass Transfer</i> , 2016, 101, 104-111.	2.5	46
220	$SiO_2$ nanofluid planar jet impingement cooling on a convex heated plate. <i>Heat and Mass Transfer</i> , 2016, 52, 2735-2746.	1.2	6
221	Effect of C60 nanofluid on the thermal performance of a flat-plate pulsating heat pipe. <i>International Journal of Heat and Mass Transfer</i> , 2016, 100, 892-898.	2.5	47
222	Numerical investigation of nanofluid heat transfer inside trapezoidal microchannels using a novel dispersion model. <i>Advanced Powder Technology</i> , 2016, 27, 1464-1472.	2.0	14
223	Effect of chevron angle on heat transfer performance in plate heat exchanger using $ZnO$ /water nanofluid. <i>Energy Conversion and Management</i> , 2016, 118, 142-154.	4.4	77
224	Heat transfer augmentation of ethylene glycol: water nanofluids and applications – A review. <i>International Communications in Heat and Mass Transfer</i> , 2016, 75, 13-23.	2.9	68
225	An experimental study on thermophysical properties and heat transfer characteristics of low volume concentrations of $Ag$ -water nanofluid. <i>International Communications in Heat and Mass Transfer</i> , 2016, 74, 91-97.	2.9	60
226	Numerical study of nanofluids condensation heat transfer in a square microchannel. <i>Numerical Heat Transfer; Part A: Applications</i> , 2016, 69, 957-976.	1.2	10
227	Numerical study of natural convection characteristics of nanofluids in an enclosure using multiphase model. <i>Heat and Mass Transfer</i> , 2016, 52, 2471-2484.	1.2	8
228	Effect of variable spacing on performance of plate heat exchanger using nanofluids. <i>Energy</i> , 2016, 114, 1107-1119.	4.5	72
229	Investigation of a New Effective Viscosity Model for Nanofluids. <i>Procedia Engineering</i> , 2016, 157, 404-413.	1.2	9
230	Numerical simulation on forced thermal flow of nanofluid in the gap between co-axial cylinders with rotational inner spindle. <i>International Journal of Heat and Mass Transfer</i> , 2016, 102, 971-979.	2.5	9
231	Application of nanofluids for the optimal design of shell and tube heat exchangers using genetic algorithm. <i>Case Studies in Thermal Engineering</i> , 2016, 8, 198-206.	2.8	38
232	Experimental Study of Friction Factor During Convective Heat Transfer in Miniature Double Tube Hair-pin Heat Exchanger. <i>Procedia Technology</i> , 2016, 24, 669-676.	1.1	4
233	Ethylene glycol (EG)-based nanofluids as a coolant for automotive radiator. <i>Asia Pacific Journal on Computational Engineering</i> , 2016, 3, .	2.2	52
234	Improving the cooling performance of automobile radiator with ethylene glycol water based $TiO_2$ nanofluids. <i>International Communications in Heat and Mass Transfer</i> , 2016, 78, 121-126.	2.9	132
235	Numerical investigation of heat transfer enhancement from a protruded surface by cross-flow jet using $Al_2O_3$ -water nanofluid. <i>International Journal of Heat and Mass Transfer</i> , 2016, 101, 550-561.	2.5	15

#	ARTICLE	IF	CITATIONS
236	Thermodynamic properties and pyrolysis performances of hydrocarbon-fuel-based nanofluids containing palladium nanoparticles. <i>Journal of Analytical and Applied Pyrolysis</i> , 2016, 120, 347-355.	2.6	11
237	Nanofluids revisited. <i>Applied Thermal Engineering</i> , 2016, 106, 1114-1126.	3.0	53
238	Investigation of heat transfer of nanofluids in turbulent flow in a cylindrical channel. <i>Fluid Dynamics</i> , 2016, 51, 189-199.	0.2	13
239	Review on nanofluids characterization, heat transfer characteristics and applications. <i>Renewable and Sustainable Energy Reviews</i> , 2016, 64, 163-173.	8.2	174
240	Nanofluids to improve the performance of PEM fuel cell cooling systems: A theoretical approach. <i>Applied Energy</i> , 2016, 178, 660-671.	5.1	113
241	Experimental investigation of heat transfer augmentation inside double pipe heat exchanger equipped with reduced width twisted tapes inserts using polymeric nanofluid. <i>Heat and Mass Transfer</i> , 2016, 52, 2515-2529.	1.2	28
242	Flow and heat transfer characteristics of nanofluids containing rod-like particles in a turbulent pipe flow. <i>International Journal of Heat and Mass Transfer</i> , 2016, 93, 57-66.	2.5	30
243	Thermal and fluid dynamic behaviors of confined laminar impinging slot jets with nanofluids. <i>International Communications in Heat and Mass Transfer</i> , 2016, 70, 15-26.	2.9	59
244	Effectiveness of nanofluid on improving the performance of microchannel heat sink. <i>Applied Thermal Engineering</i> , 2016, 101, 402-412.	3.0	59
245	Thermal analysis of Al <sub>2</sub> O <sub>3</sub> -water ethylene glycol mixture nanofluid for single PEM fuel cell cooling plate: An experimental study. <i>International Journal of Hydrogen Energy</i> , 2016, 41, 5096-5112.	3.8	82
246	The significant effect of turbulence characteristics on heat transfer enhancement using nanofluids: A comprehensive review. <i>International Communications in Heat and Mass Transfer</i> , 2016, 72, 39-47.	2.9	12
247	Heat Transfer and Pressure Drop Characteristics of Dilute Alumina-Water Nanofluids in a Pipe at Different Power Inputs. <i>Heat Transfer Engineering</i> , 2016, 37, 1554-1565.	1.2	26
248	Environmental impacts and hazards associated with metal working fluids and recent advances in the sustainable systems: A review. <i>Renewable and Sustainable Energy Reviews</i> , 2016, 60, 1008-1031.	8.2	90
249	Intensification of heat transfer using PANI nanoparticles and PANI-CuO nanocomposite based nanofluids. <i>Chemical Engineering and Processing: Process Intensification</i> , 2016, 104, 172-180.	1.8	45
250	Single-phase heat transfer enhancement in micro/minichannels using nanofluids: Theory and applications. <i>Applied Energy</i> , 2016, 164, 733-755.	5.1	125
251	A review of small heat pipes for electronics. <i>Applied Thermal Engineering</i> , 2016, 96, 1-17.	3.0	224
252	The Viscosity of Nanofluids: A Review of the Theoretical, Empirical, and Numerical Models. <i>Heat Transfer Engineering</i> , 2016, 37, 387-421.	1.2	178
253	Experimental study of ethylene glycol-based Al <sub>2</sub> O <sub>3</sub> nanofluid turbulent heat transfer enhancement in the corrugated tube with twisted tapes. <i>Heat and Mass Transfer</i> , 2016, 52, 141-151.	1.2	22

#	ARTICLE	IF	CITATIONS
254	Thermal Performance Improvement of Tractor Radiator Using CuO/Water Nanofluid. Heat Transfer - Asian Research, 2017, 46, 61-74.	2.8	11
255	Local convective heat transfer coefficient and friction factor of CuO/water nanofluid in a microchannel heat sink. Heat and Mass Transfer, 2017, 53, 661-671.	1.2	28
256	Enhancement of laminar convective heat transfer using microparticle suspensions. Heat and Mass Transfer, 2017, 53, 169-176.	1.2	4
257	Experimental investigation of thermal properties of cutting fluid using soluble oil-based TiO <sub>2</sub> nanofluid. Powder Technology, 2017, 310, 213-220.	2.1	37
258	Investigation of engines radiator heat recovery using different shapes of nanoparticles in H <sub>2</sub> O/(CH <sub>2</sub> OH) <sub>2</sub> based nanofluids. International Journal of Hydrogen Energy, 2017, 42, 10891-10900.	3.8	38
259	Ultrafast cooling of a hot steel plate using Cu-Al layered double hydroxide nanofluid jet. International Journal of Thermal Sciences, 2017, 116, 52-62.	2.6	18
260	Heat transfer of swirling impinging jets with TiO <sub>2</sub> -water nanofluids. Chemical Engineering and Processing: Process Intensification, 2017, 114, 16-23.	1.8	35
261	A critical review of traditional and emerging techniques and fluids for electronics cooling. Renewable and Sustainable Energy Reviews, 2017, 78, 821-833.	8.2	515
262	Thermo-physical properties of Al <sub>2</sub> O <sub>3</sub> -SiO <sub>2</sub> /PAG composite nanolubricant for refrigeration system. International Journal of Refrigeration, 2017, 80, 1-10.	1.8	93
263	State-of-art review on hybrid nanofluids. Renewable and Sustainable Energy Reviews, 2017, 77, 551-565.	8.2	435
264	Fouling formation and thermal performance of aqueous carbon nanotube nanofluid in a heat sink with rectangular parallel microchannel. Applied Thermal Engineering, 2017, 123, 29-39.	3.0	89
265	An experimental study on the thermal conductivity and dynamic viscosity of TiO <sub>2</sub> -SiO <sub>2</sub> nanofluids in water: Ethylene glycol mixture. International Communications in Heat and Mass Transfer, 2017, 86, 181-189.	2.9	200
266	Effects of functionalized single walled carbon nanotubes on thermal performance of antifreeze: An experimental study on thermal conductivity. Applied Thermal Engineering, 2017, 120, 358-366.	3.0	94
267	Performance of nanofluid-based photovoltaic/thermal systems: A review. Renewable and Sustainable Energy Reviews, 2017, 76, 323-352.	8.2	163
268	Experimental study of pressure drops across microtube using graphene and magnetic graphene nanofluid. AIP Conference Proceedings, 2017, , .	0.3	2
269	Thermo-physical properties of hybrid nanofluids and hybrid nanolubricants: A comprehensive review on performance. International Communications in Heat and Mass Transfer, 2017, 83, 30-39.	2.9	121
270	Engine cooling using Al <sub>2</sub> O <sub>3</sub> /water nanofluids. Applied Thermal Engineering, 2017, 115, 152-159.	3.0	65
271	Experimental analysis of energy and friction factor for titanium dioxide nanofluid in a water block heat sink. International Journal of Heat and Mass Transfer, 2017, 115, 77-85.	2.5	30

#	ARTICLE	IF	CITATIONS
272	Experimental investigation of free single jet impingement using Al <sub>2</sub> O <sub>3</sub> -water nanofluid. International Communications in Heat and Mass Transfer, 2017, 88, 126-135.	2.9	27
273	Study on the performance of TEG with heat transfer enhancement using graphene-water nanofluid for a TEG cooling system. Science China Technological Sciences, 2017, 60, 1168-1174.	2.0	21
274	Competition between the lid driven and the natural convection of nanofluids taking into consideration the Soret effect. International Journal of Heat and Mass Transfer, 2017, 114, 1341-1349.	2.5	11
275	Experimental study of turbulent forced convection of nanofluid in channels with cylindrical and spherical hollows. International Journal of Heat and Mass Transfer, 2017, 115, 915-925.	2.5	15
276	Cooling of electronic devices: Nanofluids contribution. Applied Thermal Engineering, 2017, 127, 421-435.	3.0	165
277	Heat pipe long term performance using water based nanofluid. Cogent Engineering, 2017, 4, 1336070.	1.1	2
278	Experimental measurements of thermal conductivity of alumina nanofluid synthesized in salt melt. AIP Advances, 2017, 7, .	0.6	18
279	Nanotechnology applications for electrical transformers—A review. Electric Power Systems Research, 2017, 143, 573-584.	2.1	89
280	A study on a simplified liquid cooling system with a pump serving as cold plate. , 2017, , .		6
281	Entropy Generation Analysis and Performance Evaluation of Turbulent Forced Convective Heat Transfer to Nanofluids. Entropy, 2017, 19, 108.	1.1	49
282	Nanofluid (H <sub>2</sub> O-Al <sub>2</sub> O <sub>3</sub> /CuO) flow over a heated square cylinder near a wall under the incident of Couette flow. Journal of Mechanical Science and Technology, 2018, 32, 659-670.	0.7	4
283	A novel concept to enhance the applicability of solid gallium as phase change material for heat sinks by integrating within it discretely distributed chunks of un-encapsulated PCM. International Communications in Heat and Mass Transfer, 2018, 91, 274-281.	2.9	14
284	Up to date review on the synthesis and thermophysical properties of hybrid nanofluids. Journal of Cleaner Production, 2018, 190, 169-192.	4.6	157
285	A new effective viscosity model for nanofluids. International Journal of Numerical Methods for Heat and Fluid Flow, 2018, 28, 571-583.	1.6	6
286	Heat transfer and entropy generation analysis of a protruded surface in presence of a cross-flow jet using Al <sub>2</sub> O <sub>3</sub> -water nanofluid. Thermal Science and Engineering Progress, 2018, 5, 327-338.	1.3	15
287	Effects of variable particle sizes on hydrothermal characteristics of nanofluids in a microchannel. International Journal of Heat and Mass Transfer, 2018, 120, 490-498.	2.5	40
288	A new approach using un-encapsulated discrete PCM chunks to augment the applicability of solid gallium as phase change material in thermal management applications. Energy Conversion and Management, 2018, 158, 133-146.	4.4	24
289	Effects of half spherical bulges on heat transfer characteristics of CPU cooled by TiO <sub>2</sub> -water nanofluids. International Journal of Heat and Mass Transfer, 2018, 123, 320-330.	2.5	65

#	ARTICLE	IF	CITATIONS
290	On the nanofluids applications in microchannels: A comprehensive review. Powder Technology, 2018, 332, 287-322.	2.1	202
291	Mechanisms of pattern formation from dried sessile drops. Advances in Colloid and Interface Science, 2018, 254, 22-47.	7.0	124
292	Effects of heat source and sink on entropy generation and MHD natural convection of Al <sub>2</sub> O <sub>3</sub> -Cu/water hybrid nanofluid filled with square porous cavity. Thermal Science and Engineering Progress, 2018, 6, 57-71.	1.3	133
293	Experimental investigation of thermal conductivity and dynamic viscosity on nanoparticle mixture ratios of TiO <sub>2</sub> -SiO <sub>2</sub> nanofluids. International Journal of Heat and Mass Transfer, 2018, 116, 1143-1152.	2.5	223
294	Utilization of Nanofluid in Various Clean Energy and Energy Efficiency Applications. Green Energy and Technology, 2018, , 3-33.	0.4	1
295	Heat transfer enhancement using non-Newtonian nanofluids in a shell and helical coil heat exchanger. Experimental Thermal and Fluid Science, 2018, 90, 132-142.	1.5	88
296	Analysis of heat transfer and pumping power for bottom-heated porous cavity saturated with Cu-water nanofluid. Powder Technology, 2018, 326, 356-369.	2.1	90
297	Thermal performance of a heat sink microchannel working with biologically produced silver-water nanofluid: Experimental assessment. Experimental Thermal and Fluid Science, 2018, 91, 509-519.	1.5	114
298	Numerical study of flow and heat transfer of water-Al <sub>2</sub> O <sub>3</sub> nanofluid inside a channel with an inner cylinder using Eulerian-Lagrangian approach. Journal of Thermal Analysis and Calorimetry, 2018, 132, 651-665.	2.0	46
299	The preparation, characterization and application of glycol aqueous base graphene oxide nanofluid. MATEC Web of Conferences, 2018, 238, 02001.	0.1	4
300	Numerical investigation of heat transfer by an impinging jet using alumina-water nanofluid. Numerical Heat Transfer; Part A: Applications, 2018, 74, 1486-1502.	1.2	10
301	Investigation of the Electric Field variation on surface of nanoparticle added to transformer oil. , 2018, , .		5
302	Thermal Transport and Challenges on Nanofluids Performance. , 0, , .		5
303	An Experimental Study on the Convective Heat Transfer Behaviour of Diamond Nanofluids in Electronic Cooling Applications. , 2018, , .		4
304	Experimental Study of Al <sub>2</sub> O <sub>3</sub> Nanofluids on the Thermal Efficiency of Curved Heat Pipe at Different Tilt Angle. Journal of Nanomaterials, 2018, 2018, 1-7.	1.5	20
305	Verification and optimization of the thermal design for the power stack with three IGBT modules. , 2018, , .		2
306	On the heat transfer effects of nanofluids within rotor-stator cavities. Physics of Fluids, 2018, 30, 082007.	1.6	5
307	Exergy analysis of hybrid nanofluids with optimum concentration in a plate heat exchanger. Materials Research Express, 2018, 5, 065022.	0.8	17

#	ARTICLE	IF	CITATIONS
308	MoS <sub>2</sub> nanosheets vs. nanowires: preparation and a theoretical study of highly stable and efficient nanofluids for concentrating solar power. <i>Journal of Materials Chemistry A</i> , 2018, 6, 14919-14929.	5.2	24
309	Intensified Heat Transfer Rate With the Use of Nanofluids. , 2018, , 739-750.		28
310	CFD simulation of nanofluid forced convection inside a three-dimensional annulus by two-phase mixture approach: Heat transfer and entropy generation analyses. <i>International Journal of Mechanical Sciences</i> , 2018, 146-147, 396-404.	3.6	35
311	Investigation into the effectiveness of nanofluids on the mini-channel thermal management for high power lithium ion battery. <i>Applied Thermal Engineering</i> , 2018, 142, 511-523.	3.0	104
312	Electronics cooling with nanofluids: A critical review. <i>Energy Conversion and Management</i> , 2018, 172, 438-456.	4.4	246
313	Comparison of CFD simulations to experiment for heat transfer characteristics with aqueous Al <sub>2</sub> O <sub>3</sub> nanofluid in heat exchanger tube. <i>International Communications in Heat and Mass Transfer</i> , 2018, 95, 123-131.	2.9	34
314	A review of the internal forced convective heat transfer characteristics of nanofluids: Experimental features, mechanisms and thermal performance criteria. <i>Journal of Mechanical Science and Technology</i> , 2018, 32, 3491-3505.	0.7	12
315	Experimental investigation on stability and thermo-physical properties of Al <sub>2</sub> O <sub>3</sub> -SiO <sub>2</sub> /PAG nanolubricants with different nanoparticle ratios. <i>Journal of Thermal Analysis and Calorimetry</i> , 2019, 135, 1243-1255.	2.0	47
316	Modeling of thermal conductivity and density of alumina/silica in water hybrid nanocolloid by the application of Artificial Neural Networks. <i>Chinese Journal of Chemical Engineering</i> , 2019, 27, 726-736.	1.7	28
317	A state-of-the-art overview on the developing trend of heat transfer enhancement by single-phase flow at micro scale. <i>International Journal of Heat and Mass Transfer</i> , 2019, 143, 118476.	2.5	47
318	Nanomaterials for Healthcare, Energy and Environment. <i>Advanced Structured Materials</i> , 2019, , .	0.3	5
319	Review Of Heat Transfer Enhancement In Energy Conversion Systems; Nanotechnology. <i>IOP Conference Series: Earth and Environmental Science</i> , 2019, 331, 012021.	0.2	0
320	Impact of homogeneous-heterogeneous reactions in a hybrid nanoliquid flow due to porous medium. <i>Heat Transfer - Asian Research</i> , 2019, 48, 3866-3884.	2.8	9
321	Experimental Investigation of Metal Oxide Nanofluids in a Plate Heat Exchanger. <i>Journal of Thermophysics and Heat Transfer</i> , 2019, 33, 994-1005.	0.9	5
322	Particulate Functionalized Nanodiamond as a Low Concentration Additive to Liquid Systems to Enhance Their Thermal Extraction Capability. , 2019, , .		1
323	Analysis on the influences of atomization characteristics on heat transfer characteristics of spray cooling. <i>Sustainable Cities and Society</i> , 2019, 51, 101799.	5.1	20
324	Heat transfer enhancement of air-cooled heat sink channel using a piezoelectric synthetic jet array. <i>International Journal of Heat and Mass Transfer</i> , 2019, 143, 118484.	2.5	35
325	Effects of mixed surfactants on heat transfer performance of pulsed spray cooling. <i>International Journal of Heat and Mass Transfer</i> , 2019, 144, 118593.	2.5	21

#	ARTICLE	IF	CITATIONS
326	Assessment of the thermal performance of a thermosyphon heat pipe using zirconia-acetone nanofluids. <i>Renewable Energy</i> , 2019, 136, 884-895.	4.3	104
327	An experimental investigation, sensitivity analysis and RSM analysis of MWCNT(10)-ZnO(90)/10W40 nanofluid viscosity. <i>Journal of Molecular Liquids</i> , 2019, 288, 111020.	2.3	33
328	Performance analysis and design optimization of heat pipe sink with a variable height fin array under natural convection. <i>Applied Thermal Engineering</i> , 2019, 159, 113939.	3.0	23
329	Experimental investigation on the surface tension and contact angle of Al <sub>2</sub> O <sub>3</sub> -oil and SiO <sub>2</sub> -oil nanofluids. <i>International Journal of Nanomanufacturing</i> , 2019, 15, 80.	0.3	1
330	Impact of chemical reaction on the convective heat transport in nanofluid occupying in porous enclosures: A realistic approach. <i>International Journal of Mechanical Sciences</i> , 2019, 157-158, 357-373.	3.6	34
331	Potential of adaptive neuro-fuzzy methodology for investigation of heat transfer enhancement of a minichannel heat sink. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2019, 523, 516-524.	1.2	4
332	Roles of Nanofluids, Temperature of Base Fluids, and Pressure Gradient on Heat Transfer Enhancement From a Cylinder: Uniformly Heated/Heat Flux. <i>Journal of Heat Transfer</i> , 2019, 141, .	1.2	1
333	Extended Battery Life in Smart Watch using Photovoltaic with Quantum Dot and Conversion System. , 2019, , .		1
334	The flow of ferromagnetic nanofluid over an extending surface under the effect of operative Prandtl model: A numerical study. <i>Advances in Mechanical Engineering</i> , 2019, 11, 168781401989612.	0.8	7
335	Performance Analysis Flow and Heat Transfer Characteristics of Secondary Refrigerant Based SiO <sub>2</sub> Nanofluid. <i>Materials Today: Proceedings</i> , 2019, 18, 4683-4689.	0.9	7
336	Liquid cooling system for a high power light emitting diode of an automotive headlamp and its effect on light intensity. <i>European Physical Journal: Special Topics</i> , 2019, 228, 2495-2509.	1.2	4
337	Numerical and Experimental Studies of Nanofluid as a Coolant Flowing Through a Circular Tube. <i>Lecture Notes in Mechanical Engineering</i> , 2019, , 511-518.	0.3	3
338	Recent progress on concentrating direct absorption solar collector using nanofluids. <i>Journal of Thermal Analysis and Calorimetry</i> , 2019, 137, 903-922.	2.0	46
339	Effect of the mixture of mineral/sunflower oil based ferrofluid on thermal and flow properties. <i>Materials Research Express</i> , 2019, 6, 046101.	0.8	5
340	Effective Prandtl Number Model Influences on the $\gamma_{Al_2O_3}^{H_2O}$ and $\gamma_{Al_2O_3}^{Al_2O_3}$ $\gamma_{C_2H_6O_2}^{H_2O}$ and $\gamma_{Al_2O_3}^{Al_2O_3}$ Nanofluids Spray Along a Stretching Cylinder. <i>Arabian Journal for Science and Engineering</i> , 2019, 44, 1601-1616.	1.7	32
341	Renewable energy harvesting with the application of nanotechnology: A review. <i>International Journal of Energy Research</i> , 2019, 43, 1387-1410.	2.2	125
342	Enhancement of Central Processing Unit Liquid Cooling Performance Using Hexagonal Boron Nitride Nanofluids. <i>Journal of Thermal Science and Engineering Applications</i> , 2019, 11, .	0.8	0
343	Thermodynamic analysis of fly ash nanofluid for automobile (heavy vehicle) radiators. <i>Journal of Thermal Analysis and Calorimetry</i> , 2019, 136, 223-233.	2.0	32

#	ARTICLE	IF	CITATIONS
344	Application of Nanofluid. , 2019, , 317-350.		4
345	Application of $TiO_2$ nanofluid-based coolant for jet impingement quenching of a hot steel plate. <i>Experimental Heat Transfer</i> , 2019, 32, 322-336.	2.3	14
346	Numerical evaluation on thermal-hydraulic characteristics of dilute heat-dissipating nanofluids flow in microchannels. <i>Journal of Thermal Analysis and Calorimetry</i> , 2019, 135, 671-683.	2.0	33
347	Syntheses, characterization, measurement and modeling viscosity of nanofluids containing OH-functionalized MWCNTs and their composites with soft metal (Ag, Au and Pd) in water, ethylene glycol and water/ethylene glycol mixture. <i>Journal of Thermal Analysis and Calorimetry</i> , 2019, 135, 83-96.	2.0	9
348	Experimental investigation on heat transfer enhancement in a minichannel using CuO-water nanofluid. <i>International Journal of Ambient Energy</i> , 2019, 40, 847-853.	1.4	4
349	Convective Heat Transport in a Heat Generating Porous Layer Saturated by a Non-Newtonian Nanofluid. <i>Heat Transfer Engineering</i> , 2019, 40, 1363-1382.	1.2	25
350	Experimental studies on flow and heat transfer characteristics of secondary refrigerant-based CNT nanofluids for cooling applications. <i>International Journal of Ambient Energy</i> , 2020, 41, 285-288.	1.4	27
351	An experimental study on heat transfer and fluid flow of rough plate heat exchanger using $Al_2O_3$ /water nanofluid. <i>Experimental Heat Transfer</i> , 2020, 33, 261-281.	2.3	43
352	Effects of temperature and volume concentration on thermal conductivity of $TiO_2$ (70-30)/EG-water hybrid nano-fluid. <i>Powder Technology</i> , 2020, 362, 578-585.	2.1	46
353	Advanced photovoltaic thermal collectors. <i>Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering</i> , 2020, 234, 206-213.	1.4	10
354	Single phase flow of nanofluid including graphite and water in a microchannel. <i>Heat and Mass Transfer</i> , 2020, 56, 1-24.	1.2	12
355	On analysis of Blasius and Rayleigh-Stokes hybrid nanofluid flow under aligned magnetic field. <i>Journal of Thermal Analysis and Calorimetry</i> , 2020, 139, 2119-2127.	2.0	23
356	Experimental investigation of cooling performance with graphene based nano-fluids in a vehicle radiator. <i>Heat and Mass Transfer</i> , 2020, 56, 521-530.	1.2	22
357	Experimental investigation of transient heat transfer coefficient in natural convection with $Al_2O_3$ -nanofluids. <i>Heat and Mass Transfer</i> , 2020, 56, 901-911.	1.2	13
358	Numerical solution of the onset of Buoyancy-driven nanofluid convective motion in an anisotropic porous medium layer with variable gravity and internal heating. <i>Heat Transfer</i> , 2020, 49, 1170-1191.	1.7	31
359	$WSe_2$ Nanosheets Synthesized by a Solvothermal Process as Advanced Nanofluids for Thermal Solar Energy. <i>ACS Sustainable Chemistry and Engineering</i> , 2020, 8, 1627-1636.	3.2	20
360	An experimental study on microchannel heat sink via different manifold arrangements. <i>SN Applied Sciences</i> , 2020, 2, 1.	1.5	5
361	Experimental investigation of the particle size effect on heat transfer coefficient of $Al_2O_3$ nanofluid in a cylindrical microchannel heat sink. <i>Journal of Thermal Analysis and Calorimetry</i> , 2020, 141, 957-967.	2.0	12

#	ARTICLE	IF	CITATIONS
362	Exploring the efficacy of using various coolants on lithium-ion 18650 cell employing conjugate heat transfer simulation. <i>Materials Today: Proceedings</i> , 2020, 20, 222-227.	0.9	3
363	Application of Artificial Neural Networks for Accurate Prediction of Thermal and Rheological Properties of Nanofluids. , 0, , .		0
364	3D flow and heat transfer of micropolar fluid suspended with mixture of nanoparticles (Ag-CuO/H <sub>2</sub> O) driven by an exponentially stretching surface. <i>Multidiscipline Modeling in Materials and Structures</i> , 2020, 16, 1691-1707.	0.6	8
365	Modeling Simulation and Temperature Control on Thermal Characteristics of Airborne Liquid Cooling System. <i>IEEE Access</i> , 2020, 8, 113112-113120.	2.6	5
366	MHD mixed convective nanofluid flow about a vertical slender cylinder using overlapping multi-domain spectral collocation approach. <i>Case Studies in Thermal Engineering</i> , 2020, 18, 100598.	2.8	33
367	Feature of Entropy Generation in Cu-Al <sub>2</sub> O <sub>3</sub> /Ethylene Glycol Hybrid Nanofluid Flow Through a Rotating Channel. <i>BioNanoScience</i> , 2020, 10, 950-967.	1.5	27
368	Fluid dynamic simulations of EG-W (ethylene glycol-water) mixtures to predict nanofluid heat transfer coefficients. <i>Environmental Technology and Innovation</i> , 2020, 20, 101113.	3.0	2
369	Transparent nanofluids with high thermal conductivity for improved convective thermal management of optoelectronic devices. <i>Experimental Heat Transfer</i> , 2022, 35, 183-195.	2.3	6
370	The effect of gallium phosphide-thermal 55 Nanofluid on double tube heat exchangers in laminar flow. <i>International Journal of Ambient Energy</i> , 2020, , 1-6.	1.4	2
371	A review on nanofluid: preparation, stability, thermophysical properties, heat transfer characteristics and application. <i>SN Applied Sciences</i> , 2020, 2, 1.	1.5	120
372	Thermoacoustic investigations on nanofluids. <i>AIP Conference Proceedings</i> , 2020, , .	0.3	0
373	A numerical assessment on heat transfer and flow characteristics of nanofluid in tubes enhanced with a variety of dimple configurations. <i>Thermal Science and Engineering Progress</i> , 2020, 19, 100578.	1.3	21
374	Influence of temperature dependent viscosity and internal heating on the onset of convection in porous enclosures saturated with viscoelastic fluid. <i>Asia-Pacific Journal of Chemical Engineering</i> , 2020, 15, e2514.	0.8	15
375	Reliability of Al <sub>2</sub> O <sub>3</sub> nanofluid concentration on the heat transfer augmentation and resizing for single and double stack microchannels. <i>AEJ - Alexandria Engineering Journal</i> , 2020, 59, 1771-1785.	3.4	21
376	Heat transfer and flow characteristics of hybrid Al <sub>2</sub> O <sub>3</sub> /TiO <sub>2</sub> -water nanofluid in a minichannel heat sink. <i>Heat and Mass Transfer</i> , 2020, 56, 2757-2767.	1.2	35
377	Experimental study of the performance of Al <sub>2</sub> O <sub>3</sub> /water nanofluid in condensing unit of air conditioner. <i>Materials Today: Proceedings</i> , 2020, 33, 208-213.	0.9	9
378	Advanced fluids – a review of nanofluid transport and its applications. , 2020, , 281-382.		4
379	Preparation of Long Duration Stable CNT Nanofluid Using SDS. <i>Integrated Ferroelectrics</i> , 2020, 204, 11-22.	0.3	18

#	ARTICLE	IF	CITATIONS
380	Thermo-magnetohydrodynamic effects on Cu <sup>2+</sup> engine oil/water nanofluid flow in a porous media-filled annular region bounded by two rotating cylinders. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science, 2020, 234, 2360-2375.	1.1	3
381	Particle size effect in different base fluids on the thermal conductivity of fatty acid coated magnetite nanofluids. Journal of Molecular Liquids, 2020, 303, 112650.	2.3	17
382	Heat transfer enhancement with nanofluids in plate heat exchangers: A comprehensive review. European Journal of Mechanics, B/Fluids, 2020, 81, 173-190.	1.2	94
383	Numerical and Experimental Study on the Heat Dissipation Performance of a Novel System. Energies, 2020, 13, 106.	1.6	1
384	Effect of a micro heat sink geometric design on thermo-hydraulic performance: A review. Applied Thermal Engineering, 2020, 170, 114974.	3.0	126
385	Novel WS <sub>2</sub> -Based Nanofluids for Concentrating Solar Power: Performance Characterization and Molecular-Level Insights. ACS Applied Materials & Interfaces, 2020, 12, 5793-5804.	4.0	22
386	Cooling performance of Newtonian and non-Newtonian nanofluids in a square channel: experimental investigation and ANN modeling. Journal of Thermal Analysis and Calorimetry, 2020, 142, 2189-2202.	2.0	3
387	Titania Nanofluids Based on Natural Ester: Cooling and Insulation Properties Assessment. Nanomaterials, 2020, 10, 603.	1.9	27
388	Improving thermal performance of thermoelectric coolers (TECs) through a nanofluid driven water to air heat exchanger design: An experimental research. Energy Conversion and Management, 2020, 214, 112893.	4.4	44
389	An optimization study on heat transfer of pool boiling exposed ultrasonic waves and particles addition. International Communications in Heat and Mass Transfer, 2020, 114, 104558.	2.9	14
390	Investigation of Hydrothermal Behavior of Fe <sub>3</sub> O <sub>4</sub> -H <sub>2</sub> O Nanofluid Natural Convection in a Novel Shape of Porous Cavity Subjected to Magnetic Field Dependent (MFD) Viscosity. Journal of Energy Storage, 2020, 30, 101395.	3.9	88
391	On the performance of nanofluids in APR 1400 PLUS7 assembly: Neutronics. Annals of Nuclear Energy, 2020, 144, 107508.	0.9	17
392	Exfoliated graphene oxide-based nanofluids with enhanced thermal and optical properties for solar collectors in concentrating solar power. Journal of Molecular Liquids, 2020, 306, 112862.	2.3	32
393	A critical review on numerical study of nanorefrigerant heat transfer enhancement. Powder Technology, 2020, 368, 18-31.	2.1	16
394	A review on the properties, preparation, models and stability of hybrid nanofluids to optimize energy consumption. Journal of Thermal Analysis and Calorimetry, 2021, 144, 1959-1983.	2.0	118
395	One-pot sonochemical synthesis route for the synthesis of ZnO@TiO <sub>2</sub> /DW hybrid/composite nanofluid for enhancement of heat transfer in a square heat exchanger. Journal of Thermal Analysis and Calorimetry, 2021, 143, 1139-1155.	2.0	5
396	Diamond Nanofluids: Microstructural Analysis and Heat Transfer Study. Heat Transfer Engineering, 2021, 42, 479-491.	1.2	9
397	Analysis of unsteady flow of blood conveying iron oxide nanoparticles on melting surface due to free convection using Casson model. Heat Transfer, 2021, 50, 279-291.	1.7	3

#	ARTICLE	IF	CITATIONS
398	Numerical investigation of conjugate heat transfer and entropy generation of MHD natural convection of nanofluid in an inclined enclosure. International Journal of Numerical Methods for Heat and Fluid Flow, 2021, 31, 308-344.	1.6	7
399	Experimental studies on evaporation kinetics of gold nanofluid droplets: Influence of nanoparticle sizes and coating on thermal performance. Applied Thermal Engineering, 2021, 183, 116180.	3.0	13
400	The entropy generation analysis of forward and backward laminar water flow in a plate-pin-fin heatsink considering three different splitters. International Communications in Heat and Mass Transfer, 2021, 120, 105026.	2.9	25
401	Enhancement of heat transfer in radiator using copper oxide nano fluids. Materials Today: Proceedings, 2021, 39, 643-648.	0.9	2
402	A review on the application of the nanofluids. Heat Transfer, 2021, 50, 1113-1155.	1.7	13
403	Heat transfer applications of nanofluids. , 2021, , 337-381.		2
404	Heat transfer studies of Al <sub>2</sub> O <sub>3</sub> /water-ethylene glycol nanofluid using factorial design analysis. Chemical Industry and Chemical Engineering Quarterly, 2022, 28, 95-101.	0.4	2
405	Experimental study of the LED lamp. MATEC Web of Conferences, 2021, 338, 01015.	0.1	1
406	Impact of Cattaneo-Christov Heat Flux On Al <sub>2</sub> O <sub>3</sub> -Cu/H <sub>2</sub> O-(CH <sub>2</sub> OH) <sub>2</sub> Hybrid Nanofluid Flow Between Two Stretchable Rotating Disks. Advances in Sustainability Science and Technology, 2021, , 329-368.	0.4	4
407	Utilization of Nanofluids as Coolant- A Review. Lecture Notes in Mechanical Engineering, 2021, , 731-740.	0.3	1
408	Experimental Analysis of Forced Turbulent Convective Heat Transfer in a Circular Cross-Sectional Tube With Al <sub>2</sub> O <sub>3</sub> -Water Nanofluid. Springer Proceedings in Materials, 2021, , 1245-1257.	0.1	0
409	Effect of alumina nanoparticle shape in a triangular porous array of heated periodic pin-fins. Korean Journal of Chemical Engineering, 2021, 38, 704-715.	1.2	4
410	Synthesis, characterization and heat transfer study of reduced graphene oxide-Al <sub>2</sub> O <sub>3</sub> nanocomposite based nanofluids: Investigation on thermal conductivity and rheology. Materials Today Communications, 2021, 26, 101986.	0.9	26
411	Numerical and experimental study on optimization of CPU system cooled by nanofluids. Case Studies in Thermal Engineering, 2021, 24, 100848.	2.8	22
412	A Review on Electronics Cooling using Nanofluids. IOP Conference Series: Materials Science and Engineering, 2021, 1130, 012007.	0.3	3
413	Applications of Nanofluid in the thermal devices: A Review. IOP Conference Series: Materials Science and Engineering, 2021, 1116, 012010.	0.3	1
414	Thermal and electrical conductivity of a graphene-based hybrid filler epoxy composite. Journal of Materials Science, 2021, 56, 15151-15161.	1.7	14
415	Investigation of heat transfer characteristics using Fe <sub>3</sub> O <sub>4</sub> nanofluid along with TT inserts in tube with uniform electromagnetic field. Applied Nanoscience (Switzerland), 0, , 1.	1.6	2

#	ARTICLE	IF	CITATIONS
416	A Brief Review on Thermal Behaviour of PANI as Additive in Heat Transfer Fluid. Emerging Advances in Integrated Technology, 2021, 02, .	0.1	0
417	The Effects of Hot Blocks Geometry and Particle Migration on Heat Transfer and Entropy Generation of a Novel I-Shaped Porous Enclosure. Sustainability, 2021, 13, 7190.	1.6	7
418	Flow felid and heat transfer enhancement investigations by using a combination of corrugated tubes with a twisted tape within 3D circular tube based on different dimple configurations. Heat Transfer, 2021, 50, 6868-6885.	1.7	14
419	Effects of using a porous disk on the dynamic features of phase change process with PCM integrated circular pipe during nano-liquid forced convection in discharging operation mode. Journal of the Taiwan Institute of Chemical Engineers, 2021, 124, 381-390.	2.7	17
420	The influence of multiple fins arrangement cases on heat sink efficiency of MHD MWCNT-water nanofluid within tilted T-shaped cavity packed with trapezoidal fins considering thermal emission impact. International Communications in Heat and Mass Transfer, 2021, 126, 105468.	2.9	22
421	Nanodiamond Colloids heat transfer behavior in electronics thermal management “ an experimental study. Experimental Heat Transfer, 2022, 35, 780-796.	2.3	8
422	Experimental and computational study of using nanofluid for thermal management of electronic chips. Journal of Energy Storage, 2021, 39, 102630.	3.9	15
423	Mathematical Modeling and numerical simulation for nanofluid flow with entropy optimization. Case Studies in Thermal Engineering, 2021, 26, 101198.	2.8	21
424	Thermal efficiency analysis of a nanofluid-based micro combined heat and power system using CNG and biogas. Energy, 2021, 231, 120870.	4.5	7
425	A Comparative Study of Multiple Regression and Machine Learning Techniques for Prediction of Nanofluid Heat Transfer. Journal of Thermal Science and Engineering Applications, 2022, 14, .	0.8	7
426	Environmental and industrialization challenges of nanofluids. , 2022, , 467-481.		1
428	Effects of flow field on thermal management in proton exchange membrane fuel cell stacks: A numerical study. International Journal of Energy Research, 2021, 45, 7617-7630.	2.2	10
429	Preparation, applications and challenges of nanofluids in electronic cooling: A systematic review. Materials Today: Proceedings, 2021, 43, 366-372.	0.9	36
430	Heat transfer augmentation in a mini-channel using MWCNT-water nanofluid as coolant. AIP Conference Proceedings, 2021, , .	0.3	0
431	A Review on Thermophysical Properties and Nusselt Number Behavior of Al <sub>2</sub> O <sub>3</sub> Nanofluids in Heat Exchangers. Journal of Thermal Science, 2021, 30, 418-431.	0.9	6
432	Experimental investigation of convective heat transfer using ethylene glycol-based nano-fluid. E3S Web of Conferences, 2021, 239, 00022.	0.2	0
433	Experimental study of convective heat transfer and pressure loss of SiO <sub>2</sub> /water nanofluids Part 1: Nanofluid characterization - Imposed wall temperature. , 2008, , .		2
434	Applications of Nanofluids: Current and Future. Advances in Mechanical Engineering, 2010, 2, 519659.	0.8	567

#	ARTICLE	IF	CITATIONS
435	Analysis of Thermal Performance of a Car Radiator Employing Nanofluid. International Journal of Mechanical Engineering and Applications, 2014, 2, 47.	0.3	10
436	Properties of Nanofluid. , 2015, , 1-44.		1
437	Improving energy efficiency of supercomputer systems through software-aided liquid cooling management. Foundations of Computing and Decision Sciences, 2018, 43, 89-103.	0.5	1
438	A review on nanofluids - part II: experiments and applications. Brazilian Journal of Chemical Engineering, 2008, 25, 631-648.	0.7	378
439	HEAT TRANSPORT BEHAVIOR OF A MINIATURE LOOP HEAT PIPE USING WATER-NICKEL NANOFLUID. Heat Pipe Science and Technology an International Journal, 2012, 3, 83-96.	0.2	7
440	Two-phase modelling of nanofluid heat transfer in a microchannel heat sink. , 2009, , .		3
441	Review on using nanofluids for heat transfer enhancement in nuclear power plants. Kerntechnik, 2018, 83, 426-438.	0.2	1
442	The Synthesis of Solvent-Free TiO <sub>2</sub> Nanofluids through Surface Modification. Soft Nanoscience Letters, 2011, 01, 46-50.	0.8	10
443	Thermal conductivity and dynamic viscosity of mono and hybrid organic- and synthetic-based nanofluids: A critical review. Nanotechnology Reviews, 2021, 10, 1624-1661.	2.6	12
444	Heat transfer and economic analyses of using various nanofluids in shell and tube heat exchangers for the cogeneration and solar-driven organic Rankine cycle systems. International Journal of Low-Carbon Technologies, 2022, 17, 11-22.	1.2	11
445	Nanofluids: preparation, stability, properties, and thermal performance in terms of thermo-hydraulic, thermodynamics and thermo-economic analysis. Journal of Thermal Analysis and Calorimetry, 2022, 147, 7631-7664.	2.0	10
446	Delineating impact of viscous dissipation and non-uniform heat source/sink on viscous fluid flow towards a stretching surface. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 0, , 095440892110504.	1.4	1
447	INVESTIGATION OF THERMAL PERFORMANCE OF AIR TO WATER HEAT EXCHANGER USING NANO-FLUIDS. IJUM Engineering Journal, 2011, 12, .	0.5	0
448	Laminar forced convective heat transfer of Al <sub>2</sub> O <sub>3</sub> /water nanofluids. WIT Transactions on Modelling and Simulation, 2013, , .	0.0	0
449	NATURAL CONVECTION HEAT TRANSFER ENHANCEMENT IN A SQUARE CAVITY FILLED WITH NANOFLUIDS AND PERIODICALLY HEATED FROM THE SIDE. Computational Thermal Sciences, 2014, 6, 405-424.	0.5	0
450	Numerical Investigation of Heat Transfer Characteristics for the Annular Flow of Nanofluids using YPlus. Journal of Fluid Flow, Heat and Mass Transfer, 0, , .	0.0	0
451	Overview of Nanofluids to Ionanofluids: Applications and Challenges. Advanced Structured Materials, 2019, , 199-227.	0.3	1
452	GEOMETRY EFFECTS ON THERMOHYDRAULIC BEHAVIOR OF FLUID FLOW IN A SQUARE ENCLOSURE WITH AN INNER CIRCULAR TUBE. Journal of Thermal Engineering, 0, , 138-148.	0.8	0

#	ARTICLE	IF	CITATIONS
453	Investigation on spray cooling heat transfer performance with different nanoparticles and surfactants. <i>Heat and Mass Transfer</i> , 2022, 58, 887-901.	1.2	4
454	Improvement in heat transfer rate of a pipe using various types of inserts. <i>AIP Conference Proceedings</i> , 2020, , .	0.3	0
455	Enhancement of Metal Boiling Heat Transfer Performance on Micro-Nano Structure Surface Prepared by Femtosecond Laser. <i>Applied Physics</i> , 2020, 10, 153-160.	0.0	0
456	Recent advances on the thermal properties and applications of nanofluids: From nanomedicine to renewable energies. <i>Applied Thermal Engineering</i> , 2022, 201, 117725.	3.0	46
457	Investigation of SiO <sub>2</sub> Nanoparticle Retention in Flow Channels, Its Remediation Using Surfactants and Relevance of Artificial Intelligence in the Future. <i>Chemistry</i> , 2021, 3, 1371-1380.	0.9	4
458	Measurement of thermal conductivity and viscosity of ZnO-SiO <sub>2</sub> hybrid nanofluids. <i>Journal of Thermal Analysis and Calorimetry</i> , 2022, 147, 8243-8259.	2.0	10
459	Dynamic wetting behavior of nanofluid droplet on a vertically vibrating surface: A molecular dynamics study. <i>Journal of Molecular Liquids</i> , 2022, 347, 118360.	2.3	4
460	An analysis on the flow behavior of MHD nanofluid with heat generation. <i>Fuel</i> , 2022, 311, 122548.	3.4	9
461	âˆ©ç”ˆæ°/æ°šâ€–é”Œç³ç±³æµ½/2“æ”1â–,â¹³æŸâ³é³èf1/2é†çfâ™”çš,æ€Sèf1/2. <i>Journal of Central South University</i> , 2020, 28, 3391		
462	Hydrothermal performance evaluation of super hydrophobic square pin fin mini channel heat sink. <i>Thermal Science</i> , 2022, 26, 3627-3640.	0.5	5
463	Effect of Al <sub>2</sub> O <sub>3</sub> addition to an internal combustion engine coolant on heat transfer performance. <i>Case Studies in Thermal Engineering</i> , 2022, 31, 101847.	2.8	6
464	Nanofluids: Key parameters to enhance thermal conductivity and its applications. <i>Applied Thermal Engineering</i> , 2022, 207, 118202.	3.0	94
465	Synthesis, stability, density, viscosity of ethylene glycol-based ternary hybrid nanofluids: Experimental investigations and model -prediction using modern machine learning techniques. <i>Powder Technology</i> , 2022, 400, 117190.	2.1	99
466	Nanomaterials effects on induced magnetic field and double-diffusivity convection on peristaltic transport of Prandtl nanofluids in inclined asymmetric channel. <i>Nanomaterials and Nanotechnology</i> , 2022, 12, 184798042110486.	1.2	18
467	Nanofluid Heat Transfer: Enhancement of the Heat Transfer Coefficient inside Microchannels. <i>Nanomaterials</i> , 2022, 12, 615.	1.9	18
468	Transient Two-Layer Electroosmotic Flow and Heat Transfer of Power-Law Nanofluids in a Microchannel. <i>Micromachines</i> , 2022, 13, 405.	1.4	7
469	A critical review on the effect of nanorefrigerant and nanolubricant on the performance of heat transfer cycles. <i>Heat and Mass Transfer</i> , 2022, 58, 1507-1531.	1.2	6
470	Experimental Analysis of Heat Transfer by Using Nanofluid and Impact of Thermophysical Properties. <i>Journal of Nanomaterials</i> , 2022, 2022, 1-8.	1.5	16

#	ARTICLE	IF	CITATIONS
471	Combination of the Parallel/Counter Flows Nanofluid Techniques to Improve the Performances of Double-Tube Thermal Exchangers. <i>Arabian Journal for Science and Engineering</i> , 2022, 47, 7789-7796.	1.7	3
472	Experiments on Single-Phase Nanofluid Heat Transfer Mechanisms in Microchannel Heat Sinks: A Review. <i>Energies</i> , 2022, 15, 2525.	1.6	19
473	Numerical Simulation of a Forced Convection Laminar Fluid Flow with Regard for the Thermodiffusion of Nanoparticles in It. <i>Journal of Engineering Physics and Thermophysics</i> , 0, , 1.	0.2	0
474	Development of New Correlations and Parametric Optimization in Nanofluid Flow through Protruded Roughened Square Channel. <i>Mathematical Problems in Engineering</i> , 2022, 2022, 1-18.	0.6	2
475	Transportation of Darcy–Forchheimer entropy optimized nonlinear flow toward a stretchable sheet with Ohmic heating and heat generation/absorption. <i>Waves in Random and Complex Media</i> , 0, , 1-19.	1.6	2
476	A polymeric suspension of amine functionalized silica nanoparticles derived from <i>Moonj</i> grass for the carbon capture and storage applications. <i>Journal of Macromolecular Science - Pure and Applied Chemistry</i> , 2022, 59, 133-147.	1.2	3
477	Hybrid nanofluid analysis for a class of alumina particles. <i>Chinese Journal of Physics</i> , 2022, 77, 2550-2560.	2.0	7
479	A Recent Review of Viscosity Models for Nanofluids. <i>Energy Sources, Part A: Recovery, Utilization and Environmental Effects</i> , 2022, 44, 1250-1315.	1.2	6
480	Entropy optimized analysis for the radiative flow of a nanofluid: the Darcy-Forchheimer model. <i>Waves in Random and Complex Media</i> , 0, , 1-18.	1.6	1
482	Thermal analysis of Fe <sub>3</sub> O <sub>4</sub> /water nanofluid in spiral and serpentine mini channels by using experimental and theoretical models. <i>International Journal of Environmental Science and Technology</i> , 2023, 20, 2037-2052.	1.8	19
483	Fluid flow and heat transfer of carbon nanotubes- or graphene nano platelets-based nanofluids in a channel with micro-cylinders: an experimental study. <i>Heat and Mass Transfer</i> , 2022, 58, 2221-2234.	1.2	1
484	EVALUATION OF THE THERMAL CONDUCTIVITY OF NANOFUIDS USING STATISTICAL ANALYSIS METHODS. <i>Nanoscience and Technology</i> , 2022, 13, 45-61.	0.6	3
485	A novel approach for engineering efficient nanofluids by radiolysis. <i>Scientific Reports</i> , 2022, 12, .	1.6	2
486	A review on data centre cooling system using heat pipe technology. <i>Sustainable Computing: Informatics and Systems</i> , 2022, 35, 100774.	1.6	9
487	Numerical evaluation of MHD SWCNT-water nanoliquid performance in cooling an electronic heat sink featuring twisted hexagonal fins considering thermal emission impact: Comparison between various fins shapes. <i>Sustainable Energy Technologies and Assessments</i> , 2022, 53, 102350.	1.7	1
488	Enhancing the thermal performance of different flow configuration minichannel heat sink using Al <sub>2</sub> O <sub>3</sub> and CuO-water nanofluids for electronic cooling: An experimental assessment. <i>International Journal of Thermal Sciences</i> , 2022, 181, 107767.	2.6	23
489	Effects of L-shaped fins on cooling an electronic heat sink fitted under magnetic field of CNT–water/ethylene glycol nanoliquid. <i>European Physical Journal Plus</i> , 2022, 137, .	1.2	2
490	Mineral and Ester Nanofluids as Dielectric Cooling Liquid for Power Transformers. <i>Nanomaterials</i> , 2022, 12, 2723.	1.9	8

#	ARTICLE	IF	CITATIONS
491	Experimental Study of Thermal and Pressure Performance of Porous Heat Sink Subjected to Al <sub>2</sub> O <sub>3</sub> -H <sub>2</sub> O Nanofluid. Electronics (Switzerland), 2022, 11, 2471.	1.8	1
492	Heat Transfer Performance of Plate Fin and Pin Fin Heat Sinks Using Al <sub>2</sub> O <sub>3</sub> /H <sub>2</sub> O Nanofluid in Electronic Cooling. Processes, 2022, 10, 1644.	1.3	1
493	Effect of splitter angles and orientations attached to pin fin on heat transfer and hydraulic characteristics in a jet impingement rectangular channel. AEJ - Alexandria Engineering Journal, 2023, 62, 475-488.	3.4	10
494	REVIEW ON CONVECTIVE HEAT TRANSFER OF POROUS MEDIA WITH NANOFUIDS. Special Topics and Reviews in Porous Media, 2022, 13, 45-84.	0.6	0
495	Experimental study on flow and heat transfer of Al-kerosene nanofuels for regenerative cooling application. Experimental Heat Transfer, 2024, 37, 233-245.	2.3	0
496	Microchannel Heat Exchanger. , 2023, , 99-105.		0
497	A Numerical Study on Heat Transfer Characteristics of a Novel Rectangular Grooved Microchannel with Al <sub>2</sub> O <sub>3</sub> /Water Nanofluids. Energies, 2022, 15, 7187.	1.6	5
498	The Forced Convection Analysis of Water Alumina Nanofluid Flow through a 3D Annulus with Rotating Cylinders via $k-\epsilon$ Turbulence Model. Energies, 2022, 15, 6730.	1.6	12
499	Analysis of Heat Transfer Characteristics of a $\text{Al}_2\text{O}_3/\text{SiO}_2$ /Water Hybrid Nanofluid in a Localized Heated Porous Cavity. Arabian Journal for Science and Engineering, 2023, 48, 967-983.	1.7	3
500	Enhancement of MHD radiative CNT-50% water + 50% ethylene glycol nanofluid performance in cooling an electronic heat sink featuring wavy fins. Waves in Random and Complex Media, 0, , 1-26.	1.6	4
501	Enhancement of piezoelectric fan cooling by geometrical arrangements. International Journal of Heat and Mass Transfer, 2022, 199, 123479.	2.5	5
502	Experimental and numerical investigation to evaluate the thermal performance of jet impingement surface cooling with MWCNT/Al <sub>2</sub> O <sub>3</sub> -deionized water hybrid nanofluid. International Journal of Thermal Sciences, 2023, 184, 108010.	2.6	3
503	An Experimental Assessment into the Pressure and Thermal Efficacy of Chemically Synthesized Nanofluids in Computer Cooling Applications. Journal of Nanomaterials, 2022, 2022, 1-16.	1.5	0
504	Effect of pipe rotation on heat transfer to laminar non-Newtonian nanofluid flowing through a pipe: a CFD analysis. Chemical Product and Process Modeling, 2022, .	0.5	0
505	Evaluation of a nanofluid-based concentrating photovoltaic thermal system integrated with finned PCM heatsink: An experimental study. Renewable Energy, 2022, 201, 1010-1025.	4.3	22
506	Enhancement of heat transfer rate in shell & tube heat exchanger using CuO/Al <sub>2</sub> O <sub>3</sub> -water based nanofluids. Materials Today: Proceedings, 2022, , .	0.9	4
507	Theoretical study on enhancement of heat transfer of nanofluids with functionalized graphene flakes in confined nanopipe system. Journal of Industrial and Engineering Chemistry, 2022, , .	2.9	0
508	Experimental examination of the properties of Fe <sub>3</sub> O <sub>4</sub> /water nanofluid, and an estimation of a correlation using an artificial neural network. Journal of Molecular Liquids, 2023, 374, 121150.	2.3	7

#	ARTICLE	IF	CITATIONS
509	CFD Modeling of the Effect of the Air- Cooling on Electronic Heat Sources. , 2022, 5, 49-62.		0
510	Syngas purification by modified solvents with nanoparticles. , 2023, , 101-130.		1
511	A comprehensive review of heat transfer enhancement of heat exchanger, heat pipe and electronic components using graphene. Case Studies in Thermal Engineering, 2023, 45, 102874.	2.8	12
512	Review of jet impingement cooling of electronic devices: Emerging role of surface engineering. International Journal of Heat and Mass Transfer, 2023, 206, 123888.	2.5	21
513	Reliability of Different Nanofluids and Different Micro-Channel Configurations on the Heat Transfer Augmentation. Processes, 2023, 11, 652.	1.3	4
514	Analyzing the pressure and thermal efficiency of chemically synthesized nanofluids for computer cooling methods. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 0, , 095440892311614.	1.4	0
515	Experimental and numerical study on air-to-nanofluid thermoelectric cooling system using novel surface-modified Fe <sub>3</sub> O <sub>4</sub> nanoparticles. Microfluidics and Nanofluidics, 2023, 27, .	1.0	10
517	Analyzing the thermal performance of radiator using nanoparticles of Al <sub>2</sub> SiO <sub>5</sub> immersed nanofluids. International Journal on Interactive Design and Manufacturing, 0, , .	1.3	0
518	Numerical investigation of nanofluid deposition in a microchannel cooling system. Powder Technology, 2023, 425, 118582.	2.1	5
519	Experimental investigation of thermal conductivity of Al <sub>2</sub> O <sub>3</sub> -TiO <sub>2</sub> -SiO <sub>2</sub> nanofluids in EG/water mixture for automotive radiator cooling system. AIP Conference Proceedings, 2023, , .	0.3	0
526	Strategies for thermal management of electronics: Design, development, and applications. , 2023, , 673-686.		0
529	Quantifying spectral thermal transport properties in framework of molecular dynamics simulations: a comprehensive review. Rare Metals, 2023, 42, 3914-3944.	3.6	5
537	Effect of polyacrylic acid (PAA) addition on the characteristics of heat transfer nanofluid of Al <sub>2</sub> O <sub>3</sub> synthesized from bauxite. AIP Conference Proceedings, 2024, , .	0.3	0