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2023

Freeform thermal-mechanical Bi-functional Cu-plated diamond/Cu metamaterials manufactured by selective laser melting.

Zhang L, Li Y, Hu R, Yin J, Sun Q, Li X, Gao L, Wang H, Xiong W and Hao L. *Journal of Alloys and Compounds vol.* 968, *Elsevier*.

Integration and optimization of methanol-reforming proton exchange membrane fuel cell system for distributed generation with combined cooling, heating and power. Liang Z, Liang Y, Luo X, Wang H, Wu W, Chen J and Chen Y. *Journal of Cleaner Production vol. 411, Elsevier.*

Flow boiling heat transfer of zeotropic mixture refrigerants R454B and R449A in a smooth horizontal tube. Xia Y, Yu J, Suulker D and Wang HS. *International Journal of Refrigeration vol. 150, 313-326.Elsevier.*

2022

Investigation of solar assisted air source heat pump heating system integrating compound parabolic concentrator-capillary tube solar collectors.

Yang LW, Xu RJ, Zhou WB, Li Y, Yang T and Wang HS. Energy Conversion and Management vol. 277, Elsevier.

Thermal Response Measurement and Performance Evaluation of Borehole Heat Exchangers: A Case Study in Kazakhstan.

Amanzholov T, Seitov A, Aliuly A, Yerdesh Y, Murugesan M, Botella O, Feidt M, Wang HS, Belyayev Y and Toleukhanov A. *Energies vol. 15, (22).Mdpi*.

Experimental and Theoretical Investigations of a Ground Source Heat Pump System for Water and Space Heating Applications in Kazakhstan.

Yerdesh Y, Amanzholov T, Aliuly A, Seitov A, Toleukhanov A, Murugesan M, Botella O, Feidt M, Wang HS, Tsoy A and Belyayev Y. *Energies vol. 15, (22).Mdpi.*

Concentration performance of solar collector integrated compound parabolic concentrator and flat microchannel tube with tracking system.

Xu R, He Z, Yang L, Xu S, Wang R and Wang H. Renewable Energy vol. 200, 809-820. Elsevier.

Low temperature heating operation performance of a domestic heating system based on indirect expansion solar assisted air source heat pump.

Yang LW, Li Y, Yang T and Wang HS. Solar Energy vol. 244, 134-154. Elsevier.

Air-to-Water Cascade Heat Pump Thermal Performance Modelling for Continental Climate Regions. Yerdesh Y, Toleukhanov A, Mohanraj M, Wang HS, Botella O, Feidt M and Belyayev Y. *Entropie Thermodynamique vol. 3, (1).*

2021

Analysis of operation performance of three indirect expansion solar assisted air source heat pumps for domestic heating.

Yang LW, Hua N, Pu JH, Xia Y, Zhou WB, Xu RJ, Yang T, Belyayev Y and Wang HS. *Energy Conversion and Management vol.* 252, *Elsevier*.

Growth and self-jumping of single condensed droplet on nanostructured surfaces: A molecular dynamics simulation.

Pu JH, Wang SK, Sun J, Wang W and Wang HS. Journal of Molecular Liquids vol. 340, Elsevier.

Review of the advances in solar-assisted air source heat pumps for the domestic sector.

Yang LW, Xu RJ, Hua N, Xia Y, Zhou WB, Yang T, Belyayev Y and Wang HS. *Energy Conversion and Management vol.* 247,.

Marangoni condensation of steam-ethanol mixtures on a horizontal smooth tube.

Jivani S, Liu JH, Pu JH and Wang HS. Experimental Thermal and Fluid Science vol. 128,.

In-situ deposition of diamond on functionally graded copper scaffold for improved thermal conductivity and mechanical properties.

Cheng K, Xiong W, Li Y, Tang D, Geng H, Sun M, Hao L, Wang HS and Zhang H. Materials Letters vol. 299,.

Stable and Efficient Nanofilm Pure Evaporation on Nanopillar Surfaces.

Pu JH, Wang SK, Sun J, Wang W and Wang HS. Langmuir vol. 37, (12) 3731-3739.

Numerical Simulation of ThermalHydraulic Performance of a Round Tube-Fin Condenser with LiquidVapour Separation.

Hua N, Chen Y and Wang HS. Advances in Heat Transfer and Thermal Engineering 391-395. Springer Nature.

Experimental Study on Flow Boiling Heat Transfer of Refrigerant R1233zd in Microchannels. You XY, Liu JH, Hua N, Wang J, Xu RH, Yu GX and Wang HS. *Advances in Heat Transfer and Thermal Engineering*

211-216. Springer Nature.

Molecular Dynamics Simulation of Effect of Temperature Difference on Surface Condensation.

Pu JH, Sheng Q, Sun J, Wang W and Wang HS. Advances in Heat Transfer and Thermal Engineering 99-103. Springer Nature.

Heat Transfer Measurements for Condensation of FC72 in Microchannels.

Chai L, Liu JH, Hua N, Yu GX, Rose JW and Wang HS. Advances in Heat Transfer and Thermal Engineering 89-92. Springer Nature.

2020

Experimental study on flow boiling of refrigerant R1233zd(E) in microchannels: Heat transfer. You XY, Liu JH, Hua N, Wang J, Xu RJ, Yu GX and Wang HS. *Applied Thermal Engineering vol. 182*,.

Review on the developments of active magnetic regenerator refrigerators Evaluated by performance. Kamran MS, Ahmad HO and Wang HS. *Renewable and Sustainable Energy Reviews vol. 133*,.

Generation and Evolution of Nanobubbles on Heated Nanoparticles: A Molecular Dynamics Study. Pu JH, Sun J, Wang W and Wang HS. *Langmuir: The Acs Journal of Surfaces and Colloids vol. 36, 2375-2382. American Chemical Society.*

Experimental investigation of operation behavior of plate heat exchangers and their influences on organic Rankine cycle performance.

Zheng X, Luo X, Luo J, Chen J, Liang Y, Yang Z, Chen Y and Wang HS. *Energy Conversion and Management vol.* 207,.

Numerical and experimental investigation of a compound parabolic concentrator-capillary tube solar collector. Xu RJ, Zhao YQ, Chen H, Wu QP, Yang LW and Wang HS. *Energy Conversion and Management vol. 204, Elsevier.*

2019

Dependences of Formation and Transition of the Surface Condensation Mode on Wettability and Temperature Difference.

Pu JH, Sun J, Sheng Q, Wang W and Wang HS. Langmuir: The Acs Journal of Surfaces and Colloids vol. 36, 456-464. American Chemical Society.

Numerical simulation of multi-pass parallel flow condensers with liquid-vapor separation.

Hua N, Xi H, Xu RJ, Chen Y and Wang HS. International Journal of Heat and Mass Transfer vol. 142,.

Dependence of nano-confined surface condensation on tangentially external force field.

PU JH, SHENG Q, Sun J, WANG W and WANG H. Journal of Molecular Liquids. Elsevier.

2018

A review on heat transfer and hydrodynamic characteristics of nano/microencapsulated phase change slurry (N/MPCS) in mini/microchannel heat sinks.

Chai L, Shaukat R, Wang L and Wang HS. Applied Thermal Engineering vol. 135, 334-349.

Synergistic Effects of Spray-Coated Hybrid Carbon Nanoparticles for Enhanced Electrical and Thermal Surface Conductivity of CFRP Laminates.

Li Y, Zhang H, Liu Y, WANG HS, Huang Z, Peijs T and Bilotti E. Composites Part a: Applied Science and Manufacturing.

Inverse heat conduction in anisotropic and functionally graded media by finite integration method. Jin J, Zheng JL, Huang T, Yang JJ, Wang HS, Wen PH and Li JM. *International Journal of Computational Methods and Experimental Measurements vol.* 6, (6) 1149-1160.*International Information and Engineering Technology Association*.

2017

How solid surface free energy determines coalescence-induced nanodroplet jumping: A molecular dynamics investigation.

SHENG Q, SUN J, WANG W, WANG HS and BAILEY CG. Journal of Applied Physics vol. 122, 245301 (2017), Aip Publishing.

Self-shedding and sweeping of condensate on composite nano-surface under external force field: enhancement mechanism for dropwise and filmwise condensation modes.

Sun J and WANG HS. Scientific Reports. Nature Publishing Group.

Experimental investigation of a solar collector integrated with a pulsating heat pipe and a compound parabolic concentrator.

Xu RJ, Zhang XH, Wang RX, Xu SH and WANG HS. Energy Conversion and Management vol. 148, 68-77. Elsevier.

Condensation in microchannels: detailed comparisons of annular laminar flow theory with measurements. WANG HS and Rose JW. *Journal of Heat Transfer: Transactions of The Asme.American Society of Mechanical Engineers (Asme).*

CFD study on thermal transport in open-cell metal foams with and without a washcoat: Effective thermal conductivity and gas-solid interfacial heat transfer. Peng WP, Xu M, Li XF, Huai XL, Liu ZG and Wang HS. *Chemical Engineering Science vol. 161, 92-108.*

Dynamic modeling and simulation of an integral bipropellant propulsion double-valve combined test system.

Chen Y, Wang HS, Xia J, Cai GB and Zhang ZP. Acta Astronautica.

2016

Apparent emissivity of combustion soot aggregate coating at high temperature. Fu TR, Tian JB and WANG HS. *Journal of Heat Transfer: Transactions of The Asme.American Society of Mechanical Engineers (Asme).*

On the early and developed stages of surface condensation: competition mechanism between interfacial and condensate bulk thermal resistances.

Sun J and WANG HS. Scientific Reports vol. 6, Nature Publishing Group: Open Access Journals - Option C.

On the onset of surface condensation: Formation and transition mechanisms of condensation mode. Sheng Q, Sun J, Wang Q, Wang W and Wang HS. *Scientific Reports.Nature Publishing Group: Open Access Journals* - *Option C.*

A method to measure heat flux in convection using Gardon gauge.

Fu TR, Zong AZ, Zhang YR and WANG HS. Applied Thermal Engineering vol. 108, 1357-1361. Elsevier.

Numerical investigation of three types of active magnetic regenerator for room temperature.

Xue X, Tang Y, Lei X, Chen Y, Wu J and Wang H. Sichuan Daxue Xuebao (Gongcheng Kexue Ban)/Journal of Sichuan University (Engineering Science Edition) vol. 48, 200-206.

Laminar flow and heat transfer characteristics of interrupted microchannel heat sink with ribs in the transverse microchambers.

Chai L, Xia GD and Wang HS. International Journal of Thermal Sciences vol. 110, 1-11.

Parametric study on thermal and hydraulic characteristics of laminar flow in microchannel heat sink with fan-shaped ribs on sidewalls Part 2: pressure drop.

Chai L, Xia GD and Wang HS. International Journal of Heat and Mass Transfer. Elsevier.

Parametric study on thermal and hydraulic characteristics of laminar flow in microchannel heat sink with fan-shaped ribs on sidewalls Part 1: heat transfer.

Chai L, Xia GD and Wang HS. International Journal of Heat and Mass Transfer. Elsevier.

Performance optimisation of room temperature magnetic refrigerator with layered/multi-material microchannel regenerators.

Kamran MS, Ali H, Farhan M, Tang YB, Chen YG and Wang HS. *International Journal of Refrigeration vol.* 68, 94-106.

Parametric study on thermal and hydraulic characteristics of laminar flow in microchannel heat sink with fan-shaped ribs on sidewalls Part 3: performance evaluation. chai L, Xia GD and Wang HS. *International Journal of Heat and Mass Transfer.Elsevier.*

Numerical investigation of room temperature magnetic refrigerator using microchannel regenerators. Kamran MS, Sun J, Tang YB, Chen YG, Wu JH and Wang HS. *Applied Thermal Engineering vol. 102, 1126-1140. Elsevier.*

Numerical study of laminar flow and heat transfer in microchannel heat sink with offset ribs on sidewalls. Chai L, Xia GD and Wang HS. *Applied Thermal Engineering vol. 92, 32-41.Elsevier*.

2015

Successive magnetic transitions and magnetocaloric effect in Dy3Al2 compound. Li Y, Zhang H, Yan T, Long K, Wang H, Xue Y, Cheng C and Zhou H. *Journal of Alloys and Compounds vol.* 651, 278-282.*Elsevier*.

The high-temperature hydrogenation behavior of LaFe11.6Si1.4 and splitting of LaFe11.6Si1.4Hy magnetocaloric transition.

Zheng H, Tang Y, Chen Y, Wu J, Wang H, Xue X, Wang J and Pang W. *Journal of Alloys and Compounds vol.* 646, 124-128. *Elsevier*.

Corrosion behavior and S-Tc relation of LaFe13-x-yCoxSiyCz compounds near room temperature. Hu J, Zhang M, Long Y, Fu S, Wang HS and Zhong KX. *Journal of Magnetism and Magnetic Materials vol. 377, 368-372.*

Viscous dissipation effect in nano-confined shear flows: a comparative study between molecular dynamics and multi-scale hybrid simulations.

Sun J, Wang W and Wang HS. Microfluidics and Nanofluidics vol. 18, 103-109. Springer Verlag.

2014

Large reversible magnetocaloric effect in antiferromagnetic HoNiSi compound. Zhang H, Wu Y, Long Y, Wang H, Zhong K, Hu F, Sun J and Shen B. *Journal of Applied Physics vol. 116, (21).Aip*

Zhang H, Wu Y, Long Y, Wang H, Zhong K, Hu F, Sun J and Shen B. *Journal of Applied Physics vol. 116, (21).Aip Publishing.*

Application and analysis of two k- type turbulence models in meshless method.

Cai X, Tan J, Wang Y, Ren D, Wang H and Shi Q. Kongqi Donglixue Xuebao/Acta Aerodynamica Sinica vol. 32, (5).

Viscous dissipation effect in nano-confined shear flows: a comparative study between molecular dynamics and multi-scale hybrid simulations.

Sun J, Wang W and Wang HS. Microfluidics and Nanofluidics. Springer Link.

Meshless inverse method to determine temperature and heat flux at boundaries for 2D steady-state heat conduction problems.

Yu GX, Sun J, Wang HS, Wen PH and Rose JW. *Experimental Thermal and Fluid Science vol.* 52, 156-163. *Elsevier/Scince Direct*.

Successive inverse and normal magnetocaloric effects in HoFeSi compound.

Zhang H, Sun YJ, Yang LH, Niu E, Wang HS, Hu FX, Sun JR and Shen BG. *Journal of Applied Physics vol. 115*, (6). *American Institute of Physics.*

Total hemispherical radiation properties of oxidized nickel at high temperatures.

Fu TR, Tan P, Ren J and Wang HS. Corrosion Science vol. 83, 272-280. Elsevier/Science Direct.

Large reversible magnetocaloric effect in antiferromagnetic HoNiSi compound.

Zhang H, Wu YY, Long Y, Wang HS, Zhong KX, Hu FX, Sun JR and Shen BG. *Journal of Applied Physics vol.* 116,. *American Institute of Physics*.

Application and analysis of two k- type turbulence models in meshless method.

Cai XW, Tan JJ, Wang YD, Ren DF, Wang HS and Shi Q. Acta Aerodynamica Sinica vol. 32, (5) 654-659.

2013

Application of hybrid Cartesian grid and gridless approach to moving boundary flow problems. Cai XW, Tan JJ, Ma XJ, Zhang M and Wang HS. *International Journal For Numerical Methods in Fluids vol.* 72, (9) 994-1013.

Pressure Drop During Condensation in Microchannels.

Wang HS, Sun J and Rose JW. Journal of Heat Transfer vol. 135, (9). Asme International.

Heat transfer and pressure drop during condensation of R152a in circular and square microchannels. Liu N, Li JM, Sun J and Wang HS. *Experimental Thermal and Fluid Science vol.* 47, 60-67.

Application of hybrid Cartesian grid and gridless approach to moving boundary flow problems. Cai XW, Tan JJ, Ma XJ, Zhang M and Wang HS. *International Journal For Numerical Methods in Fluids vol.* 72, 994-1013.

Heat transfer and pressure drop during condensation of R152a in circular and square microchannels. Liu N, Li JM, Sun J and Wang HS. *Experimental Thermal and Fluid Science vol.* 47, 60-67.*Elsevier/Science Direct*.

Effects of vapor velocity and pressure on Marangoni condensation of steam-ethanol mixtures on a horizontal tube.

Ali H, Wang HS, Briggs A and Rose JW. Journal of Heat Transfer: Transactions of The Asme vol. 135, (3).

Dependence of nanoconfined liquid behavior on boundary and bulk factors.

Sun J, Wang W and Wang HS. Physical Review E: Statistical, Nonlinear, and Soft Matter Physics vol. 87,.

Bubble dissolution in horizontal turbulent bubbly flow in domestic central heating system.

Ge YT, Fsadni AM and Wang HS. Applied Energy vol. 108, 477-485. Elsevier/Science Direct.

Pressure drop during condensation in microchannels.

Wang HS, Sun J and Rose JW. Journal of Heat Transfer: Transactions of The Asme vol. 135, (9). American Society of Mechanical Engineers.

Dependence between velocity slip and temperature jump in shear flows.

Sun J, Wang W and Wang HS. The Journal of Chemical Physics vol. 138, (23). American Institute of Physics.

Heat Transfer and Pressure Drop during Laminar Annular Flow Condensation in Micro-Channels.

WANG HS and Rose JW. Experimental Heat Transfer vol. 26, (2-3) 247-265. Thome JR. Taylor and Francis.

2012

Multi-scale study of liquid flow in micro/nanochannels: Effects of surface wettability and topology. Sun J, He YL, Tao WQ, Rose JW and Wang HS. *Microfluidics and Nanofluidics vol. 12*, (6) 991-1008.

Effect of vapour velocity on condensate retention between fins during condensation on low-finned tubes. Fitzgerald CL, Briggs A, Rose JW and Wang HS. *International Journal of Heat and Mass Transfer vol. 55, (4) 1412-1418.*

Roughness effect on flow and thermal boundaries in microchannel/nanochannel flow using molecular dynamics-continuum hybrid simulation.

Sun J, He Y, Tao W, Yin X and Wang H. International Journal For Numerical Methods in Engineering vol. 89, (1) 2-19.

Multi-scale study of liquid flow in micro/nanochannels: Effects of surface wettability and topology. Sun J, He YL, Tao WQ, Rose JW and Wang HS. *Microfluidics and Nanofluidics vol. 12*, (6) 991-1008.

2011

Theory of heat transfer during condensation in microchannels. Wang HS and Rose JW. *International Journal of Heat and Mass Transfer vol. 54*, (11-12) 2525-2534.

2010

Effect of Vapour Velocity on Condensation of Ethylene Glycol on Horizontal Integral Fin Tubes: Heat Transfer and Retention Angle Measurements.

Fitzgerald CL, Briggs A, Wang H and Rose JW. Asme International.

2009

Microchannel condensation : Correlations and theory.

Su Q, Yu GX, Wang HS and Rose JW. International Journal of Refrigeration vol. 32, (6) 1149-1152.

Film condensation in horizontal circular section microchannels.

WANG HS and Rose JW. International Journal of Engineering Systems Modelling and Simulation vol. 1, (No 2/3) 115-121.Not known.

2008

An inverse method to determine boundary temperature and heat flux for a 2D steady state heat conduction problem.

Yu G, Wang H, Wen P and Rose JW. *Proceedings of The Asme Design Engineering Technical Conference vol. 3, (PARTS A AND B) 1087-1093.*

2007

Marangoni condensation of steam-ethanol mixtures on a horizontal tube.

Murase T, Wang HS and Rose JW. International Journal of Heat and Mass Transfer vol. 50, (19-20) 3774-3779.

2006

Film condensation in horizontal microchannels: Effect of channel shape{star, open}{star, open}A preliminary version of this paper was presented at ICMM05: Third International Conference on Microchannels and Minichannels, held at University of Toronto, June 13-15, organized by S.G. Kandlikar and M. Kawaji, CD-ROM Proceedings, ISBN: 0-7918-3758-0, ASME, New York.

Wang HS and Rose JW. International Journal of Thermal Sciences vol. 45, (12) 1205-1212.

Effect of inundation for condensation of steam on smooth and enhanced condenser tubes.

Murase T, Wang HS and Rose JW. International Journal of Heat and Mass Transfer vol. 49, (17-18) 3180-3189.

Condensation from gas-vapour mixtures in small non-circular tubes.

Krishnaswamy S, Wang HS and Rose JW. International Journal of Heat and Mass Transfer vol. 49, (9-10) 1731-1737.

Film condensation in horizontal microchannels: effect of channel shape.

WANG HS and Rose JW. International Journal of Thermal Sciences vol. 45, 1205-1212.

2005

Condensation on a horizontal wire-wrapped tube. Murase T, Briggs A, Wang HS and Rose JW. *Journal of Heat Transfer vol. 127, (11) 1207-1213.*

A theory of film condensation in horizontal noncircular section microchannels. Wang HS and Rose JW. *Journal of Heat Transfer vol. 127, (10) 1096-1105.*

2004

Prediction of effective friction factors for single-phase flow in horizontal microfin tubes. Wang HS and Rose JW. *Int J Refrig vol.* 27, (8) 904-913.

A theoretical model of film condensation in square section microchannels. ROSE JW and Wang WS. *Trans Icheme, Chem Eng. Research and Design 430-434*.

A theoretical model of film condensation in horizontal square section microchannels. WANG HS, Rose JW and Honda H. *Icheme Chemical Engineering Research and Design vol.* 82, (4) 430-434.

Effect of interphase matter transfer on condensation on low-finned tubes - a theoretical investigation. Wang HS and Rose JW. Int J Heat Mass Tran vol. 47, (1) 179-184.

Prediction of effective friction factors for single-phase flow in horizontal microfin tubes. ROSE JW and Wang HS. *Int. J. Refrigeration vol. 27, 904-913.*

2003

Heat Transfer Measurements for Condensation of Steam on a Horizontal Wire-Wrapped Tube. Briggs A, Wang HS, Murase T and Rose JW. *Journal of Enhanced Heat Transfer vol. 10, (4) 355-362.*

Condensation of refrigerants in horizontal microfin tubes: comparison of prediction methods for heat transfer. Wang HS and Honda H. *Int J Refrig vol. 26, (4) 452-460.*

Heat transfer mechanisms in vapor mushroom region of saturated nucleate pool boiling. Wei JJ, Yu B and Wang HS. *Int J Heat Fluid Fl vol. 24, (2) 210-222.*

A new high-order-accurate and bounded scheme for incompressible flow. Wei JJ, Yu B, Tao WQ, Kawaguchi Y and WANG HS. *Numerical Heat Transfer Part B-Fundamentals vol. 43, (1)* 19-41.

Condensation of refrigerants in horizontal microfin tubes: comparison of correlations for pressure drop. ROSE JW, Wang HS and Honda H. *Int. J. Refrigeration vol. 26, 461-472.*

Condensation of refrigerants in horizontal microfin tubes: comparison of correlations for frictional pressure drop.

WANG HS and Rose JW. International Journal of Refrigeration vol. 26, (4) 461-472.

2002

Numerical study of simultaneous natural convection heat transfer from both surfaces of a uniformly heated thin plate with arbitrary inclination.

Wei JJ, Yu B, Wang HS and Tao WQ. Heat Mass Transfer vol. 38, (4-5) 309-317.

Modified Theoretical Models of Film Condensation in Horizontal Microfin Tubes. WANG HS, Nozu S and Honda H. International Journal of Heat and Mass Transfer vol. 45, (7) 1513-1523.

A theoretical study of film condensation in horizontal microfin tubes.

Honda H, Wang HS and Nozu S. J Heat Trans-T Asme vol. 124, (1) 94-101.

2001

Effects of tube diameter and tubeside fin geometry on the heat transfer performance of air-cooled condensers. WANG HS and Honda H. *Journal of Enhanced Heat Transfer vol. 8, (5) 315-327.*