

Journal of Enhanced Heat Transfer

CONTENTS, VOLUME 25, 2018

Page Range of Issues: Issue 1: 1–96; Issue 2: 97–193; Issue 3: 195–291; Issues 4–5: 293–463;
Issue 6: 465–604

ISSUE 1

Compact Heat Exchangers <i>Ralph L. Webb</i>	1
Enhanced Heat Transfer of Cu-Water Nanofluid in a Channel with Wall Mounted Blunt Ribs <i>S.K. Pal & S. Bhattacharyya</i>	61
Enhanced Heat and Mass Transfer of Falling Liquid Films in Vertical Tubes <i>K. Huang & X. Deng</i>	79

ISSUE 2

SPECIAL ISSUE: ENHANCED HEAT AND MASS TRANSFER AT LOW- TEMPERATURE APPLICATIONS IN LIFE SCIENCES AND CHEMICAL ENGINEERING

GUEST EDITOR: IVAN A. ARKHAROV

Preface: Enhanced Heat and Mass Transfer at Low-Temperature Applications in Life Sciences and Chemical Engineering <i>I.A. Arkharov</i>	v
Cryoprobe and Urethral Warming System Heat Transfer: Ultrasound Gel Phantom Study <i>A.A. Zherdev, D.I. Tsiganov, A.V. Pushkarev, A.V. Shakurov, I.A. Burkov, & A.O. Vasilyev</i>	97
Heat Transfer in the Structure of a Spiral-Wound Heat Exchanger for Liquefied Natural Gas Production: Review of the Numerical Models for the Heat-Transfer Coefficient of Condensation for a Hydrocarbon Mixture in a Horizontal Tube <i>Y. Samokhvalov, A. Kolesnikov, A. Krotov, A. Parkin, E. Navasardyan, & I. Arkharov</i>	109
Simulation of Fluid Hypothermia for Robot-Assisted Prostatectomy <i>I.A. Burkov, A.A. Zherdev, A.V. Pushkarev, D.I. Tsiganov, & A.V. Shakurov</i>	121
Research of Dynamics of Meat Freezing at Various Intensities of Cryotreatment <i>A. Shinbayeva, A. Aldiyarov, A. Drobshev, & M. Zhubaniyazova</i>	137
Minimal Surfaces as Constant-Energy Surfaces for Maximum Heat and Mass Transfer Efficiency in Structured Packing of the Distillation Column <i>I.A. Arkharov, A.M. Arkharov, E.S. Navasardyan, & A.V. Dontzov</i>	143
Device for Measuring the Thermal Conductivity of Organic Substances at Low Temperatures <i>A. Shinbayeva, A. Aldiyarov, A. Drobshev, & M. Zhubaniyazova</i>	161
Modeling of Hydrodynamics in a Porous Structure of Low Temperature Regenerator. Friction Factor at Low Reynolds Numbers <i>I.A. Arkharov, A.M. Arkharov, E.S. Navasardyan, & V.A. Chekhovich</i>	169
Approximate Calculation of Convective Heat Transfer near Hypersonic Aircraft Surface <i>V.V. Kuzenov & S.V. Ryzhkov</i>	181

ISSUE 3

Effect of Air Bubble Injection on the Overall Heat Transfer Coefficient <i>K. Ökten & A. Biyikoğlu</i>	195
Thermal Energy Storage through Melting of a Commercial Phase-Change Material in a Horizontal Cylindrical Annulus <i>T. Tabassum, M. Hasan, & L. Begum</i>	211
A Review of the Role of Passive Techniques on Heat Transfer Enhancement of Horizontal Tube Falling Film and Flooded Evaporators <i>D. Balaji, R. Velraj, & M.V. Ramana Murthy</i>	239
Experimental Investigations on the Cooling Performance of Microchannels Using Alumina Nanofluids with Different Base Fluids <i>H. Sandhu, D. Gangacharyulu, & M.K. Singh</i>	283

ISSUES 4-5

SPECIAL ISSUE: ADVANCES IN COMPUTATIONAL HEAT TRANSFER (CHT-17)

GUEST EDITORS: ORONZIO MANCA & YOGESH JALURIA

Preface: Advances in Computational Heat Transfer (CHT-17) <i>O. Manca & Y. Jaluria</i>	v
Numerical Investigation of Wavy Microchannels with Rectangular Cross Section <i>P.M. Mithun Krishna, M. Deepu, & S.R. Shine</i>	293
Analysis of Natural Convection of Cu and TiO₂ Nanofluids inside Nonconventional Enclosures <i>S.A. Abbood, J. Wang, Z. Wu, & B. Sundén</i>	315
Fully Developed Convection Heat Transfer in Open-Cell Foams <i>M. Iasiello, S. Cunsolo, N. Bianco, W.K.S. Chiu, & V. Naso</i>	333
Numerical Investigation of Heat-Transfer Enhancement in a Dimpled Diverging Microchannel with Al₂O₃-Water Nanofluid <i>S.L. Nandakrishnan, M. Deepu, & S.R. Shine</i>	347
Unsteady Magnetohydrodynamic Channel Flow with Hall and Ion-Slip Effects: The Integral Transform Solution Procedure <i>B.N.M. da Silva, G.E. Assad, & J.A. de Lima</i>	367
Computational Fluid Dynamics Modeling of Developing Forced Laminar Convection Flow of Al₂O₃-Water Nanofluid in a Two-Dimensional Rectangular Section Channel <i>V. Bianco, A. Marchitto, F. Scarpa, & L.A. Tagliafico</i>	387
The Effects of Porosity and Mass-to-Thermal Drive Ratio on Aiding and Opposing Convection in Porous Enclosures <i>M.J.S. de Lemos & P.H.S. Carvalho</i>	399
Fluid Flow and Heat Transfer Characteristics past Two Tandem Elliptic Cylinders: A Numerical Study <i>S. Sunakraneni, V. Puliyeri, & A. Prakash K</i>	421
Effect of Aspect Ratio and Arrangement of Surface-Mounted Circular Cylinders on Heat Transfer Characteristics <i>H. Naik & S. Tiwari</i>	443

ISSUE 6

**SPECIAL ISSUE: HEAT AND MASS TRANSFER ENHANCEMENT ON MACRO-,
MICRO-, AND NANOSCALES**

GUEST EDITORS: YURY KUZMA-KICHTA & A. LEONTIEV

Preface: Heat and Mass Transfer Enhancement on Macro-, Micro-, and Nanoscales	v
<i>Yu. Kuzma-Kichta & A. Leontiev</i>	
Choice and Justification of the Heat Transfer Intensification Methods	465
<i>Yu. Kuzma-Kichta & A. Leontiev</i>	
Heat and Mass Transfer Enhancement in Laminar Forced Convection Wet Channel Flows with Uniform Wall Heat Flux	565
<i>V.I. Terekhov, H.Q. Khafaji, & M.V. Gorbachev</i>	
Vortex Heat Transfer Enhancement in Narrow Channels with a Single Oval-Trench Dimple Oriented at Different Angles to the Flow	579
<i>S. Isaev, A. Leontiev, Y. Chudnovsky, & I. Popov</i>	
Index, Volume 25, 2018	605

Journal of Enhanced Heat Transfer

AUTHOR INDEX, VOLUME 25, 2018

**Page Range of Issues: Issue 1: 1–96; Issue 2: 97–193; Issue 3: 195–291; Issues 4–5: 293–463;
Issue 6: 465–604**

- | | | |
|-------------------------------------|-------------------------------------|--------------------------------|
| Abbood, S.A., 315 | Gorbachev, M.V., 565 | Pushkarev, A.V., 97, 121 |
| Aldiyarov, A., 137, 161 | Hasan, M., 211 | Ramana Murthy, M.V.,
239 |
| Arkharov, A.M., 143, 169 | Huang, K., 79 | Ryzhkov, S.V., 181 |
| Arkharov, I.A., v, 109, 143,
169 | Iasiello, M., 333 | Samokhvalov, Y., 109 |
| Assad, G.E., 367 | Isaev, S., 579 | Sandhu, H., 283 |
| Balaji, D., 239 | Jaluria, Y., v | Scarpa, F., 387 |
| Begum, L., 211 | Khafaji, H.Q., 565 | Shakurov, A.V., 97, 121 |
| Bhattacharyya, S., 61 | Kolesnikov, A., 109 | Shinbayeva, A., 137, 161 |
| Bianco, N., 333 | Krotov, A., 109 | Shine, S.R., 293, 347 |
| Bianco, V., 387 | Kuzenov, V.V., 181 | Singh, M.K., 283 |
| Biyikoğlu, A., 195 | Kuzma-Kichta, Yu., 465 | Sunakraneni, S., 421 |
| Burkov, I.A., 97, 121 | Leontiev, A., 465, 579 | Sundén, B., 315 |
| Carvalho, P.H.S., 399 | Manca, O., v | Tabassum, T., 211 |
| Chekovich, V.A., 169 | Marchitto, A., 387 | Tagliafico, L.A., 387 |
| Chiu, W.K.S., 333 | Mithun Krishna, P.M., 293 | Terekhov, V.I., 565 |
| Chudnovsky, Y., 579 | Naik, H., 443 | Tiwari, S., 443 |
| Cunsolo, S., 333 | Nandakrishnan, S.L., 347 | Tsiganov, D.I., 97, 121 |
| da Silva, B.N.M., 367 | Naso, V., 333 | Vasilyev, A.O., 97 |
| de Lemos, M.J.S., 399 | Navasardyan, E.S., 109, 143,
169 | Velraj, R., 239 |
| de Lima, J.A., 367 | Ökten, K., 195 | Wang, J., 315 |
| Deepu, M., 293, 347 | Pal, S.K., 61 | Webb, R.L., 1 |
| Deng, X., 79 | Parkin, A., 109 | Wu, Z., 315 |
| Dontzov, A.V., 143 | Popov, I., 579 | Zherdev, A.A., 97, 121 |
| Drobyshev, A., 137, 161 | Prakash K, A., 421 | Zhubaniyazova, M., 137,
161 |
| Gangacharyulu, D., 283 | Puliyeri, V., 421 | |

Journal of Enhanced Heat Transfer

SUBJECT INDEX, VOLUME 25, 2018

**Page Range of Issues: Issue 1: 1–96; Issue 2: 97–193; Issue 3: 195–291; Issues 4–5: 293–463;
Issue 6: 465–604**

- abdominal hypothermia, 121
absorption and distillation column, 143
additional heat flux, 565
additives for liquids, 239
air bubble injection, 195
alumina, 283
angle of wetting, 465
artificial roughness, 465
axis ratio, 421
boiling and condensation heat transfer, 465
boiling crisis, 465
boiling curve, 465
boundary layer, 181
 brazed aluminum, 1
 calculation, 579
 capillary-porous-vortex and corrugated structure, 465
 carbon dioxide, 121
 CFD analysis, 169
 CFD, 293
 channel effectiveness, 293
 channel flow, 367
 channel with porous inserts, 465
 chaotic analysis, 465
 coefficient of hydraulic resistance, 465
 complex surface, 143
 computational aerodynamics, 181
 computational modeling, 211
 COMSOL Multiphysics, 333
 condensation, 109
 conjugate analysis, 293
 convective, 465
 converging-diverging tube, 79
 cryoablation, 97
 cryocoolers, 169
 cryoprobe, 97
 cryosurgery, 97
 cryotreatment, 161
 curved enclosures, 315
 deep and diameter of depression and dimple, 465
 dimpled microchannel, 347
 direct evaporative cooler, 565
 displaced enhancement, 79
 diverging microchannel, 347
 dosing, 97, 121
 double-diffusion, 399
 double-pipe heat exchanger, 211
 drag coefficient, 421
 enhancement factor, 347
 enhancement of cooling, 465
 entropy, 61
 ethylene glycol, 283
 extended surface, 239
 falling film evaporators, 239
 film boiling, 465
 finite element analysis, 121
 finite elements, 333
 first and second law efficiencies, 195
 flooded evaporators, 239
 fluctuations of vapor film thickness, 465
 fluid hypothermia, 121
 forced convection, 387
 free convection, 399
 freezing of meat, 137
 friction factor, 61, 169
 gas hypothermia, 121
 geometric, 1
 Hall and ion-slip effects, 367
 Hamiltonian formalism, 143
 heat and mass transfer enhancement, 565
 heat and mass transfer, 143
 heat exchangers, 1, 465
 heat transfer coefficient, 1
 heat transfer enhancement in pipes with knurling, 465
 heat transfer enhancement, 181, 443, 579
 heat transfer performance, 283
 heat transfer, 97, 315, 399
 heated channel, 387
 heat-transfer coefficient, 109
 heat-transfer enhancement, 347
 height-averaged Nusselt number, 443
 humidity, 565
 hydrodynamics of porous structures, 169
 hypersonic jet, 181
 hypothermia, 121
 ice slurry, 121
 inline arrangement, 443
 integral transforms, 367
 intensification of heat transfer, 465
 intensifier of macro-, micro-, and nanoscales, 465
 Joule–Thomson cryoprobe, 97
 Kelvin’s model, 333
 laminar flow, 1, 387, 399
 LNG, 109
 low temperatures, 161
 low-temperature treatment, 137
 magneto-convection, 367
 magnetohydrodynamics, 367
 mass transfer, 399
 mathematical model, 181
 meat, 161
 melting and solidification, 211
 microchannel, 283
 minimal surfaces, 143
 minimally invasive, 121
 mixed refrigerant, 109
 multiple passive enhancements, 347
 nanofluids, 61, 239, 283, 347, 387
 nanoparticles, 315
 narrow channel, 579
 natural convection, 315
 number of nucleation sites, 465
 numerical, 315
 Nusselt number, 421
 oval-trench dimple, 579
 overall heat transfer coefficient, 195
 passive techniques, 239
 perimeter-averaged Nusselt

- number, 443
phase-change material, 211
pore scale analysis, 333
porous media, 399
porous structures, 169
pressure drop, 1
regenerator, 143, 169
Reynolds number, 1
robot-assisted prostatectomy, 121
robot-assisted surgery, 121
rough surface, 79, 239
single-phase flow, 79
spring-coil insert, 79
staggered arrangement, 443
- Strouhal number, 421
structured packing, 143
structured surface, 239
SUPG-FEM, 421
surface-mounted circular cylinders, 443
tandem elliptic cylinders, 421
tape twisting, 465
thermal conductivity of meat, 137
thermal conductivity, 161
thermal energy storage, 195
thermal history, 121
thermal performance factor, 347, 443
- thermal performance, 61
tissue phantom, 97
treated surface, 239
two-phase flows, 79, 239
ultrahydrophobic surface, 465
ultrasound gel, 97
urethral warming catheter, 97
vortex, 579
wall protrusions, 61
water, 283
wavy microchannels, 293
wet wall, 565