

Table of Contents

Preface

Thermo-Mechanical Analysis of Rubber Compounds Filled by Carbon Nanotubes	1
P. Koštial, D. Bakošová, Z. Jančíková, I. Ružiak and J. Valíček	
Modeling of Titanium Oxide Layer Growth Produced by Fiber Laser Beam	11
F. Hamadi, E.H. Amara, D. Bennaceur-Doumaz, R. Boutaka, H. Kellou, K. Bourai, A. Noukaz and R. Beggar	
Experimental Study of Temperature Effect on Oil Relative Permeability in Porous Media	19
M.A. Karaei, A. Ahmadi, H. Fallah and A. Dabiri	
Modifications of Pyrolysis Boilers to Reduce Harmful Flue Gas Emissions	29
J. Müllerová, V. Kuběna, J. Valíček, M. Harničárová and P. Koštial	
Cross-Injection Film Cooling on a Curved Surface with or without a Vortical Flow in the Mainstream	39
P.S. Wu, K.Y. Chen and Y.H. Lin	
Molecular Dynamics Simulation of Thermal Conductivity of Aluminum	47
J. Davoodi and S. Khoshkhatti	
Mixed Convection Boundary Layer Flow of Viscoelastic Fluids Past a Sphere	57
A. Dasman, A.R. Mohd Kasim, N.F. Mohammad, A. Mangi and S. Shafie	
Resistor Model for Heat Storage Coefficient	65
A.K. Shrotriya	
Numerical Analysis of Temperature Profiles in a Hollow Circular Cylinder by Alternative Direction Implicit Method	73
M.D. de Campos, E.C. Romão and L.F. Mendes de Moura	
Poisson, Helmholtz and Convection 2D Unsteady Equations by Finite Difference Method of $O(\Delta x^6)$	83
E.C. Romão, M.D. de Campos and L.F. Mendes de Moura	
Microstructure and Thermal Conductivity Characteristics of $\text{Sm}_2\text{Zr}_2\text{O}_7+8\text{YSZ}$ Type TBCs	91
G. Moskal and M. Mikuśkiewicz	
Heat Transfer inside Elliptic Cylindrical Reactor: Effect of Bed Porosity	97
A.A. Silva Filho, J.P. Silva de Almeida and A.G.B. de Lima	
Influence of Corrosive Environment on Changes of the ZnAl40Cu3 Upper Alloy Layer	103
R. Michalik	
Optimization of a Thermoelectric Air Conditioning Systems	111
J. Machado da Silva, R.E. da Silva, J.R. Camargo and E. Godoy Junior	
Modeling of Coal Drying before Pyrolysis	121
D. Kolani, E. Blond, A. Gasser, T. Rozhkova and M. Landreau	
Determination of Thermal Diffusivity and Influence of Defect Structure in Alloys Based on the Fe-Al System	129
E. Bernstock-Kopaczyńska and M. Jabłońska	
Sensitivity of Models Applied in Selected Simulation Systems with Respect to Database Quality for Resolving of Casting Problems	135
Z. Ignaszak, P. Popielarski and J. Hajkowski	
Ranque-Hilsch Vortex Tube Potential for Water Desalination	147
G. Stanescu	
AC Magnetic Heating of Superparamagnetic Fe and Co Nanoparticles	159
A. Lukawska, Z. Jagoo, G. Kozłowski, Z. Turgut, H. Kosai, A. Sheets, T. Bixel, A. Wheatley, P. Abdulkin, B. Knappett, T. Houlding and V. Degirmenci	
Phonon Thermal Conductivity of F.C.C. Cu by Molecular Dynamics Simulation	169
L. Momenzadeh, A.V. Evteev, E.V. Levchenko, I.V. Belova, G.E. Murch and Y.H. Sohn	
Bounding of Effective Thermal Conductivity of Two-Phase Materials	185
R. Singh, S. Kumar and R.S. Beniwal	
Error Estimates for the Finite Difference Solution of the Heat Conduction Equation: Consideration of Boundary Conditions and Heat Sources	195
M.M. Davoudi and A. Öchsner	

Heat Conductivity of Metallic Hollow Sphere Structures: Numerical Simulation and Experimental Validation

M.A.F. Araújo, M. Merkel and A. Öchsner

209