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Nota di contenuto	Advanced Diffusion Processes and Phenomena; Preface; Table of Contents; An Improved Heat Equation to Model Ductile-to-Brittle Failure Mode Transition at High Strain Rates Using Fully Coupled Thermal-Structural Finite Element Analysis; Estimating the Permeability of Ferrite-Polymer Composite via a Numerical Optimization Method; Numerical Modeling of Solidification Substitute - Thermal Capacity of Binary Alloy; Plasma Polymerization of Hexamethyldisiloxane and Tetraethoxysilane Thin Films for Humidity Sensing Application Study of Modification of PP/EPDM Compounds by Ultraviolet and Gamma Radiation Using Recycled Polypropylene Collected after EPDM Waste Processing as Raw MaterialsThe Relation between Drift, Entropy Distribution and Kirkendall Plane Position during Diffusion; Neural Network-Based Prediction of Effective Heat Storage Coefficient of Building Materials; An Overview of the Interdiffusion Studies in Mo-Si and W-Si Systems; Competitive Precipitation and Recrystallization in U-7.5Nb-2.5Zr Alloy; Phase Transformations and Recrystallization in Cold-Rolled Al-Mn, Al-Sc-Zr and Al-Mn-Sc-Zr Alloy Use of Cellular Automata for Modelling of the Material Erosion and Grit Entrainment during Discharge in EDMNanostructuring of Ni by Various Modes of Severe Plastic Deformation; Diffusion in an Ensemble of

Intersecting Grain Boundaries; Solution of Direct and Inverse Problems for Infiltration and Contaminant Adsorption in Partially Saturated Porous Media; Pulse Carburization of Steel - Model of the Process; Isotope Exchange between  $^{18}\text{O}_2$  Gas and Mechanoactivated Oxides of the Family Rare Earth - Manganese - Oxygen; Diffusion of Oxygen in Ti-15Mo-xZr Alloys Studied by Anelastic Spectroscopy  
Characterization of the Effects of Active Filler-Metal Alloys in Joining Ceramic-to-Ceramic and Ceramic-to-Metal Materials  
Test Matrix for Heat Exposure of Aluminum Alloys at Various Times and Temperatures; Specific Features of Interfaces in Cu-Nb Nanocomposites; Effects of High Reynolds Number Impinging Jet on the Heat Conduction in Work-Pieces Irradiated by a Moving Heat Source; About Thermo-Hydraulic Properties of Open Cell Foams: Pore Scale Numerical Analysis of Strut Shapes; The Role of Surface Area of ZnO Nanoparticles as an Agent for some Chemical Reactions  
On a Finite Element Approach to Predict the Thermal Conductivity of Carbon Fiber Reinforced Composite Materials  
A Thermo-Mechanical Model for a Counterflow Biomass Gasifier; Lattice Boltzmann Method Applied to Diffusion in Restructured Heterogeneous Media; Keywords Index; Authors Index

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#### Sommario/riassunto

This topical volume on Advanced Diffusion Processes and Phenomena addresses diffusion in a wider sense of not only mass diffusion but also heat diffusion in fluids and solids. Both diffusion phenomena play an important role in the characterization of engineering materials and corresponding structures. Understanding these different transport phenomena at many levels, from atomistic to macro, has therefore long attracted the attention of many researchers in materials science and engineering and related disciplines. The present topical volume captures a representative cross-section of some of the

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