

## Table of Contents

### Preface

<b>Neural Network-Based Machine Learning Model for Spatiotemporal Prediction of Temperature and Fraction Solid in Low-Pressure Sand Casting</b> A. Ktari, S. Housni, J. Bourgeois and M. El Mansori	1
<b>Assessment of Natural Gas-Hydrogen Fuel Blends for Industrial Melting Furnaces in Secondary Aluminium Production</b> C. Michaelis, E. Koslowski, A. Giese, C. Schwarz and M. Hackert-Oschätzchen	11
<b>Potential and Advantages of Vertical Strip Casting for Production of High-Strength Aluminum-Magnesium Alloys</b> S. Häner, D. Czempas, E. Scharifi, D. Bailly and J. Lian	21
<b>RSM-Based Approach to Optimize the Gating System in High Pressure Die Casting</b> M. Campanella, A. Piccininni, A. Cusanno, P. Guglielmi, G. Palumbo, M. Duraccio and F. Lembo	33
<b>Effect of Interfacial Heat Transfer on the Solidification Behaviour of Numerically Simulated High-Pressure Die Casting Process</b> N. Balasubramani and M. El Mansori	45
<b>Additive Manufacturing for Advanced and Functional Tooling of Dies Used in High-Pressure Die Casting Processes</b> S.H. Rajendran, N. Balasubramani and M. El Mansori	57
<b>Digital Manufacturing of One-Off Replacement Components Using Reverse Engineering and Rapid Low-Pressure Sand Casting: Dimensional Evaluation and Key Challenges</b> A. Ktari, D. Lu, G. Ainsworth and M. El Mansori	75
<b>Exploiting Artificial Neural Networks for Digital Twins in Sand Casting</b> E. Pischinas, E. Stathatos and G.C. Vosniakos	85
<b>Cleaner Melt Transfer of Recycled Aluminium Alloys: Simulation-Guided Launder Baffle Design for Aerospace-Grade Structural Castings</b> T. Sivarupan, A.M.V. Jayaraman Palanivel, K. Georgarakis, J. Forde, B. Shaw, K. Salonitis and M. Jolly	95
<b>Numerical and Experimental Design of a Step HPDC Mould for Process–Microstructure Correlation in Lightweight Component</b> A. Morri, B. Reggiani, R. Squatrito, M. da Silva, G. Zaniboni and L. Donati	107