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Nota di contenuto	Structural responses of RC slabs using HPFRC subjected to normal and elevated temperature -- Discussion on prediction of thermal displacement of five-axis machine tool using five-axis simultaneous cutting method -- Leveraging Data Analysis And LLM Models For Carbon-Optimized Decisions -- Predicting Limit Strength of CFST Columns: Impacts of Mathematical Transformers in ANN Models -- Structure Expression of Planetary Gear Systems Combined with Brakes -- An On-Chip Fatigue Tensile Test Structure for Polysilicon Thin Film -- A Study on Sensitivity Analysis of Friction Coefficient to the Dynamics of the Free-fall Lifeboat during Its Launching -- Study on optimization of 3D printing parameters for part quality -- Reducing the effect of noise for the estimation of the surface profile in white light interference by combining both Fourier transform and wavelet methods -- A hybrid Fibonacci sequence particle swarm optimization (F-PSO) algorithm for solving optimization problems -- etc...
Sommario/riassunto	This book presents selected, peer-reviewed proceedings of the 4th International Conference on Material, Machines and Methods for Sustainable Development (MMMS2024), held in the city of Da Nang, Vietnam, from September 18 to 21, 2024. The conference establishes a comprehensive understanding of the key elements that drive sustainable development, with a particular focus on materials, machinery, and methodologies. Building on this foundation, the conference seeks to provide a holistic approach that guides policymakers, industries, and researchers in aligning local technological advancements with global sustainable development objectives. This alignment is intended to support informed decision-making that prioritizes greener solutions, particularly in relation to materials, machinery, and methods. The papers presented in Volume 1 of this proceedings collection reflect cutting-edge advancements in the fields of materials science and mechanical engineering. Contributions from scholars, research institutions, and industry experts cover a diverse range of topics, including electrodeposition of advanced alloys, optimization of 3D printing parameters for enhanced part quality, and deep learning models for surface roughness assessment. Significant attention is given to material innovations such as platinum-doped tin dioxide synthesis, as well as advanced modeling techniques for piezoactive composites used in energy harvesting systems. In the realm of mechanical engineering, several papers explore critical challenges such as the design and analysis of planetary gear systems with brakes, the development of non-circular gears for electric vehicle gearboxes, and the impact of mathematical transformers on predicting the limit strength of composite columns. Other contributions address structural responses of hybrid steel fiber-reinforced concrete under various conditions and advanced methodologies like using generative design for mechanical products. A significant portion of the research emphasizes material modeling, eco-material technologies, and sustainable manufacturing processes, with applications ranging from aerospace components to energy-efficient ship structures.