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Nota di contenuto	Material Modelling of Selective Laser Sintered Polyamid 12 for the Deviatoric Stress State -- Temperature History in Laser Powder Bed Fusion: Analyzing the Effect of Inhomogeneous Heat Removal on the Microstructural State of Ti-6Al-4V -- Influence of Antiozonants on the Evolution of Crack Depth in Natural Rubber -- Using Continuous Relaxation and Intermittent Uniaxial Tests to Calibrate a Model for Thermal Ageing of Elastomers -- Elastomeric Engine Mounts - Numerical Studies for e-Mobility Applications -- Sorption Mechanisms of Oils and Fuels in Thermoplastic Polyurethanes -- Analysis of the Diffusion Behavior of Pyrolysis Oil from used Tires in Nitrile Butadiene Rubber -- Debonding on Demand of Adhesive Joints for the

Automotive Industry -- Mechanical Properties and inter-layer Bonding of thin-walled Structures in the Fused Filament Fabrication Proces -- On the Visco-Elastic Properties of PA6-COC Polymer Blends: Experimental and Modeling -- Experimental and Numerical Study on the Temperature-Dependent Tensile Properties of AlSi10Mg Fabricated By Laser-Based Powder Bed Fusion -- Characterization of Auxetic Sheet Structures: Integrating Mechanical Testing with Nondestructive Evaluation Techniques -- Recycling of Old Binding Twine from Agriculture -- Advancing Calibration Technologies: A New Approach for Environmental Monitoring System Transmitter Calibration in Regulated Industries" -- Thermal Conductivity of Additive Manufactured Aluminum Alloys -- Influence of Mechanically Recycled Material on the Properties of Liquid Silicone Rubber -- Analysis of CO2 Conversion in a Plasmalysis Reactor -- Introduction to Process Optimization in Injection Molding Using Simulation-Based AI Training -- In-Mold Coating: Innovative Coating of Polymer Components within the Injection Mold -- Application of the Two-Time-Scale Approach to the Constitutive Equations of High Temperature Steel -- Additive Manufacturing with Biodegradable Materials -- A continuum Thermomechanical Approach for Modelling Rate-Dependent material behavior under consideration of damage effects -- Strain-Induced Phase Transformation: An In-situ Study -- Statistical Size Effect in Cyclic Loading of NO30-15 -- Control Texture in PBF-LB Through Beam Shaping -- The influence of a Laser-Based Heat Treatment on the Distribution of Residual Stresses in Cantilevers Manufactured with PBF-LB -- Optimization of Energy Production and Storage Systems for Residential Buildings -- Optimization of Energy Production and Storage Systems for Residential Buildings -- Molding Simulation with Multipurpose CDF Software -- Creep-Fatigue deformation of the ferritic-martensitic steel P92 -- Steps Towards Microstructure-Based Modeling of the Influence of Hydrogen on the Fatigue Behavior of Duplex Steels -- Temperature Dependent Interdiffusion and Interlayer Mechanical Strength in Multi-Material Fused Filament Fabrication -- A System for Evaluating the State of Health of Traction Battery Systems -- Creep Mechanics - A Long History and Current Developments -- Plasticity Theory: Yield Conditions in The Invariant Space -- Materials for Additive Manufacturing - Working by Chance And Specifically Developed Alloys -- Heat Transfer - Modelling, Simulation, Measurement -- Viscoelastic Materials: From Experimental Characterisation to Continuum Mechanical Modelling, Implementation and Simulation'.

Sommario/riassunto

This book is designed to facilitate teaching and informal discussion in a supportive and friendly environment. The seminar provides a forum for postgraduate students to present their research results and train their presentation and discussion skills. Furthermore, it allows for extensive discussion of current research being conducted in the wider area of advanced structured materials. Doing so, it builds a wider postgraduate community and offers networking opportunities for early career researchers. In addition to focused lectures, the seminar provides specialized teaching/overview lectures from experienced senior academics. The 2023 Postgraduate Seminar entitled “Advanced Structured Materials: Development - Manufacturing - Characterization – Applications” was held from 20 till 24 May 2024 in Porto. The presented postgraduate lectures had a strong focus on polymer mechanics, composite materials, and additive manufacturing.