FEMS EUROMAT 23

03 - 07 Sep 2023 (Frankfurt am Main)

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FEMS EUROMAT is the most important international congress in materials science and technology in Europe. It continues a successful congress series promoting the transfer of knowledge and the exchange of experience between academia and industry. **Extended submission deadline: 15 March 2023**

Area E: Energy and Transportation

E01: Advanced Materials for Transport Applications

Transport applications remain a major driving force specifically for structural material development, where weight reduction must be achieved in parallel to fulfillment of further requirements such as noise, vibration, and harshness (NVH), crashworthiness, or material efficiency, but more and also sustainability. Here, besides the advent of trends such as electric drive based on either batteries or hydrogen fuel cells, the need to increase energy efficiency in production and close material cycles changes boundary conditions in material selection and extends the requirements to be met by viable lightweight design solutions. Beyond the choice of materials, these new demands affect decisions on manufacturing and assembly technologies. The planned symposium will highlight lightweight design as a common denominator and focus on the vehicle, not on infrastructure – the term vehicle including the road, rail, air, space, and maritime sector. Beyond this general scope, specific topics are highlighted to provide focal points for contributions and realize dedicated sessions covering the respective areas. Such suggested session topics include

- Additive Manufacturing for Transport Applications
- Advanced Casting Technology for Transport Applications
- Advanced Composite Materials for Transport Applications
- Hybrid Engineering Materials & Structures and Multi-Material Design
- Intelligent Materials, Structures, and Systems for Condition and Structural Health Monitoring (SHM) and Product Life Cycle Management (PLM)
- Simulation, Modeling, Optimization, including AI and Big Data applications for Process Discovery, Characterization, Monitoring, and Control
- Design, Material, Production, and Assembly Concepts supporting Re-Use, Re-Cycling, and Circular Economy Approaches

Further session topics may emerge from the submissions received. The intention is to provide a thematically wide forum allowing design, materials, and process engineers active in various subsectors of the transport industry to exchange research ideas and trends in their respective fields for their mutual benefit. Contributors will be offered the possibility of submitting their work to a dedicated special issue of a high-ranking scientific journal (still to be selected). In the past, such special issues have e. g. been offered with Advanced Engineering Materials, Steel Research International, Journal of Intelligent Material Systems and Structures, Materials & Design, and Materials. Depending on the submissions received, organization of multiple special issues is also an option.

*This symposium is cooperating with the **European Journal of Materials (EJM)**.*

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