



# International

*Innovation in Knowledge Based and Intelligent Engineering Systems*



## INVITED SESSION SUMMARY

### Title of Session:

Engineering design for AM in a product life cycle perspective

### Name, Title and Affiliation of Chair:

**Prof. Marco Marconi**, Università degli Studi della Tuscia

**Prof. Claudio Favi**, Università degli Studi di Parma

**Prof. Marco Mandolini**, Università Politecnica delle Marche

### Details of Session (including aim and scope):

Additive manufacturing (AM) technologies have grown rapidly in recent decades due to their well-known advantages over conventional manufacturing techniques. Given the “non-subtractive” nature inherent in AM processes, they also appear environmentally sustainable at a basic level, resulting in either no waste or at least a reduced amount of scraps. The advantages in terms of environmental sustainability become even more pronounced, especially in products with highly intricate geometries that require customisation. However, sustainability performance depends on product and process parameters in a life cycle perspective.

The session on “Engineering design for AM in a product life cycle perspective” can serve as a platform for knowledge exchange, networking, and collaboration among researchers, practitioners, and industry professionals interested in leveraging additive manufacturing technologies to drive innovation and sustainability in product development. It encompasses (i) the rise of additive manufacturing technologies across various industries and how AM has revolutionised traditional manufacturing processes by enabling the production of complex geometries, (ii) the engineering design challenges and opportunities in fulfilling environmental concerns and the integration across the product life cycle, and (iii) industry relevance providing examples and case studies showcasing successful applications of engineering design for AM across various industries, such as aerospace and automotive.

### Session topics:

- Eco-design for Design for Additive Manufacturing (DfAM)
- Life Cycle Engineering applied to Additive Manufacturing (AM) technologies
- Advanced frameworks, methods and tools for DfAM based on artificial intelligence
- Economic and Environmental Sustainability modelling and assessment of AM technologies
- Eco-design guidelines for supporting multi-criteria decision-making in AM
- Applications of Eco-DfAM in the transport vehicles sector

This session is organized in the context of the eDAM project (Lifecycle based methodology for engineering (eco)design of AM components in transport vehicles), funded by the Italian Ministry of Research - MUR in the context of the PRIN 2022 PNRR program.



**Main Contributing Researchers / Research Centres (tentative, if known at this stage):**

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**Website URL of Call for Papers (if any):**

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**Email & Contact Details:**

Prof. Marco Marconi, [marco.marconi@unitus.it](mailto:marco.marconi@unitus.it)

Prof. Claudio Favi, [claudio.favi@unipr.it](mailto:claudio.favi@unipr.it)

Prof. Marco Mandolini, [m.mandolini@staff.univpm.it](mailto:m.mandolini@staff.univpm.it)