



UNIVERSITÀ
DI TRENTO

Dipartimento di
Ingegneria Industriale

DII

Seminar

Additive Manufacturing: process and post-processing

June 12nd 2023, h. 14:30

Girasole room, Polo Ferrari 2, Via Sommarive 9, Trento

Speaker: Sara Bagherifard, ERC-Consolidator grant recipient

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Additive manufacturing (AM) offers the possibility of producing parts of intricate geometries that are otherwise extremely laborious, if not impossible to be made using standard manufacturing techniques. There has been a significant enthusiasm to exploit the flexibility of AM for fabrication of complex geometries; but less attention has been paid to the effect of design parameters and surface characteristics on the load bearing capacity of such components for structural applications. Geometrical aspects, undeniably, have a pivotal role in defining the mechanical performance of AM parts, as they dictate the building strategy, that in turn, affects the microstructural properties, density of internal imperfections, residual stresses and surface quality. Technological inadequacies in controlling these parameters have brought increasing attention to the definition of (often customized) post-processing techniques for AM parts to address the intrinsic issue of all AM techniques regarding surface quality.

In this talk, I will provide an overview on my recent research in AM field using laser powder bed fusion (L-PBF) and cold spray additive manufacturing (CSAM) techniques. The effects of geometrical aspects and surface characteristics will be discussed and the role of possible post-treatments to tackle the issues especially associated with irregular surface morphology, microstructural directionality, and undesired residual stresses in AM parts will be reviewed.

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