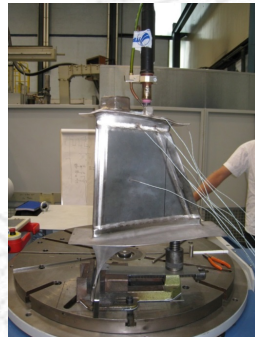
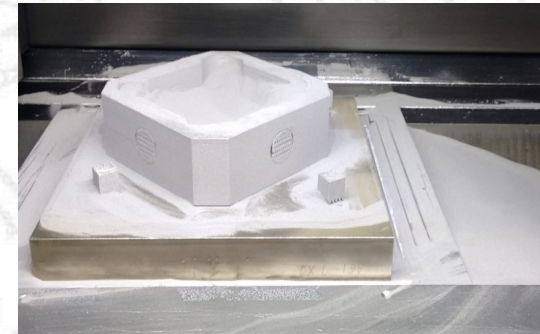


Numerical modeling of the AM process by Wire-feeding and Blown powder technologies

In this work the current developments carried out at CIMNE on the numerical simulation of the Additive Manufacturing (AM) processes are presented. A fully coupled thermo-mechanical framework has been tailored to the analysis of both powder and wire feeding technologies. The accurate definition of the power input is presented taking into account its movement following the user-defined scanning path as well as the corresponding metal deposition process leading to the layer-by-layer building sequence. Furthermore, the heat loss by convection and radiation through the boundaries of the computational domain is analysed. The proposed thermo-viscoelastic-viscoplastic constitutive model has been calibrated through an exhaustive experimental campaign. Ti64 and Inconel-718 super alloys are the reference materials for the fabrication of different components for both the aeronautical and aerospace industry.



(a) AM by wire feeding technology;



(b) AM by powder bed technology (SLM)

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October 24th, 10:30am
DICAr – Hydraulic
Meeting Room (ground floor)
Via Ferrata, 3 – Pavia