HEAT EXCHANGER DESIGN HANDBOOK WEBINAR SERIES

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ADDITIVE MANUFACTURING FOR THERMAL SCIENCE: how can we design innovative and efficient heat exchangers?

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Abstract

Recently, Additive Manufacturing (AM) of metal components has opened new frontiers in heat transfer applications, going beyond the capabilities of conventional technologies. Despite the great design freedom offered by AM, when dealing with metals, there are a few issues that should be considered to exploit the great capabilities of this manufacturing technology: design for additive, surface roughness, thermo-physical properties of printed components, etc.

This presentation discusses, in detail, how to design the heat exchangers to be manufactured by 3D metal printing for real applications and not just to become fancy paperweights.

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Simone Mancin graduated with distinction in Mechanical Engineering at the University of Padova (2005) where he also gained the PhD on Industrial Engineering (Applied Physics) (2009). He is Associate Professor at the Dept. of Management and Engineering of the University of Padova, where he teaches Applied Thermodynamics, Thermo-Fluid Dynamics, and Thermal Management of Electronic Devices. His research activities are mainly focused on the experimental and numerical analyses of single and two-phase (both condensation and evaporation) heat transfer inside additively manufactured heat exchangers, porous media, microgeometries and nanostructured materials aiming at developing innovative solutions for smart, efficient, and compact heat exchangers for refrigeration and air conditioning, and electronics cooling applications.

He is author/co-author of more than 150 scientific papers published on peer reviewed international scientific journals.