



Towards microstructure, distortion and residual stress predictions in additive manufacturing (TA6V, AlSi10Mg, M4 materials)

Abstract

After a quick overview of the current state of solid, fluid or mixed type simulations of additive manufacturing processes, the lecture will be focused on the challenges of finite element predictions through 3 different cases.

The first case consists in a DLD repair technology applied to a Ti6Al4V substrate. A constant track length and a decreased track length strategy generate different phase proportions and heterogeneous phase distribution in the substrate and in the deposit itself. The correlations between the 3D thermal history computed by finite element simulations with the microstructure, characterized by Light Microscopy and Scanning Electron Microscopy, are studied. They explain the occurrence of solid-state phase transformations. A focus on the lacking data to improve the accuracy of a global model of the successive transformations and their kinetics is proposed.

Speaker Bio

Anne Marie Habraken earned her degree in Civil Engineering as well as a PhD from the University of Liège in 1984. She became Research Associate of F.N.R.S. (Belgian National Funds for Scientific Research) in 1991 and then Research Director in 2006. She also serves as Vice Dean of Research of the Engineering School of the University of Liège.

**Friday, December 6, 2019
11:00am - 12:00pm**

Chrysler Center, Room 151
2121 Bonisteel Blvd
Ann Arbor
Metered parking is available.



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Questions?

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