



Controlling sintering to obtain nano/submicronic microstructures: from the modeling to advanced approaches like flash sintering/synthesis

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Abstract:

The sintering is a key process which governs the quality of the obtained microstructures and the final material properties. This control can be done through the optimization of the sintering trajectory. In this aim we develop an analytic model able to predict the densification grain growth kinetic to model the sintering response of different conventional sintering cycles. Advanced sintering approaches like flash sintering applied to Spark Plasma Sintering or Microwave sintering has also an interesting potential to control the microstructures¹ and tune the physical properties. The high Multiphysics nature of these processes requires a comprehensive simulation tool playing an important role in these processes control.

Biography:

Charles MANIERE has completed his PhD in 2015 from the University of Toulouse on the modeling of Spark Plasma Sintering; from 2016 to 2018 he has completed a 2 years PostDoc at the San Diego State University with Prof Eugene Olevsky who is the co-founder of the “continuum theory of sintering” Charles’s used during his PhD. During this PostDoc, Charles develops advanced multiphysics models for microwaves sintering and flash sintering, and additive manufacturing. In 2018, he has succeeded the selective entry of CNRS and starts his new CNRS assistant scientist position (chargé de recherche) at the laboratory CRISMAT from CAEN (France) where he is developing his activity on sintering.



Publication of speakers:

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