



MODELING OF ABLATIVE MATERIAL FOR HYPERSONIC FLOWS

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DeWalt Seminar Room
2164 Glenn L. Martin Hall



Speaker

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ABSTRACT

For high enthalpy applications, ablative materials have consistently been the preferred choice for designing hypersonic heat shields. Despite their continued use, uncertainties persist regarding their performance in complex aerothermal flow environments. Therefore, it is crucial to comprehend and quantify the underlying phenomena. This presentation will outline the essential steps to validate the usage of ablative materials through computational tools. These steps include building a material model, measuring properties, conducting tests in high-enthalpy facilities, and, ultimately, conducting flight tests.

BIO

Alexandre Martin obtained a B.Sc. in Physics in 1998 from the University of Montréal (Québec, Canada), and a M.Sc.A. and Ph.D. from the Department of Mechanical Engineering at École Polytechnique de Montréal (Québec, Canada). He worked primarily on plasma ablation, with an application on industrial high-voltage circuit-breakers. After continuing this work as a Research Associate at École Polytechnique for a year, he then moved to the University of Michigan (Ann Arbor, MI), where he worked on the material response of atmospheric re-entry vehicles. Since January 2010, he is a Professor of Mechanical and Aerospace Engineering at the University of Kentucky (Lexington, KY).

