

Modeling of Electron Beam Physical Vapor Deposition Process for Fabricating Thermal Barrier Coating

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Abstract

The objective of this study is to develop a validated high-fidelity model of Electron Beam Physical Vapor Deposition process that can predict the coating thickness. A ray tracing technique is used to find the coating thickness assuming a line-of-sight coating process and taking the shadowing effects into consideration. Case studies of coating process on different parts, including plate, sphere, and a gas turbine blade, are demonstrated.