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Abstract

A dense γ -Y₂Si₂O₇/B₂O₃-Al₂O₃-SiO₂ glass coating was fabricated by slurry spraying method on porous Si₃N₄ ceramic for water resistance. Thermal shock failure was recognized as one of the key failure modes for porous Si₃N₄ radome materials. In this paper, thermal shock resistance of the coated porous Si₃N₄ ceramics were investigated through rapid quenching thermal shock experiments and transient finite element analysis. Thermal shock resistance of the coating was tested at 700°C, 800°C, 900°C and 1000°C. Results showed that the cracks initiated within the coating after thermal

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