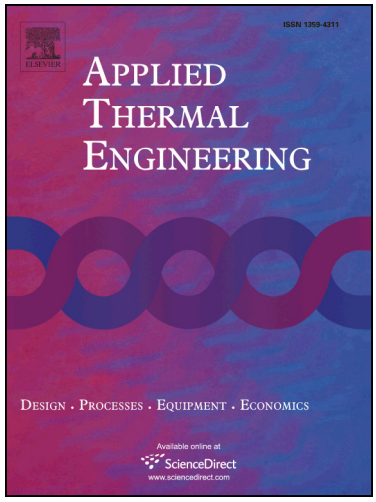

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Optimization design of built-up thermal protection system based on validation of corrugated core homogenization

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ABSTRACT

An optimization procedure aiming to design a built-up thermal protection system is presented in this paper. The built-up thermal protection system comprises of classical Integrated Thermal Protection System (ITPS) and additional layer of insulation material which is attached to the cold surface of ITPS. In this paper, corrugated core sandwich panel which is fabricated using C/SiC composite material is considered as an ITPS when the core void is filled with insulation material. It is found in this paper that for the built-up TPS the temperature calculated based on corrugated core homogenization shows significant deviation from the exact solution. The significant advantage of the built-up TPS in insulation ability compared to the traditional ITPS is validated. An interesting phenomenon is also found that

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