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PARAMETER STUDY OF LAP STRUCTURE BETWEEN SKIRT AND COMPOSITE MATERIAL CASE OF SRM

Abstract

A fast and efficient analysis and optimization methodology-Design and Analysis Computer Experiments (DACE) is introduced, and then is used to identify of relationship which may exist between five parameters of LBSCC (Lap structure between skirt and composites material cases of SRM) and CBTOC (the capability of bearing the thrust loads of the case). A metamodeling approach which is constructed by Artificial Neural Network (ANN) has been applied to implementing the parametric investigation problems. The ANN is trained and validated using simulation results. The database of cases is created using Space-filling sampling of design of experiment (DOE) method. Finally, the relationship curves of design variables considered in this study between objective function are plotted, and the parameters sensitivity analysis are carried out. The results obtained can be as a guide for the optimal structure design of the SRM case.