

Research on numerical welding experiment of a thick spherical shell structure(PDF)

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Title: Research on numerical welding experiment of a thick spherical shell structure

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摘要: In this paper, in order to predict the residual deformation of thick spherical structure, a welding program is compiled in APDL language based on Ansys and a numerical welding experiment of a welding example is carried out. The temperature field of welding was simulated firstly, then a thermal-structure coupling analysis was carried out, and at last the residual stress and deformation after welding were got. After that, the numerical experiment result was compared with physical experiment one. The comparative analysis shows that the numerical simulation fits well with physical experiment. On the basis of that, a three-dimensional numerical experiment of a thick spherical shell structure was carried out to get the changing rule of stress and deformation of a thick spherical shell structure during welding. The research is of great value to the prediction of residual deformation and high precision machining.

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