Evaluation on the Model of Performance Predictions for On-line Monitoring System for Combined-Cycle Power Plant

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Key Words : Combined-Cycle, Performance, On-line, GateCycle,

Abstract : This paper presents the simulation model developed to predict design and off-design performance of an actual combined cycle power plant(S-Station in Korea), which would be running to combined with on-line performance monitoring system in an on-line real-time fashion. The first step in thermal performance analysis is to build an accurate performance model of the power plant, in order to achieve this goal, GateCycle program has been employed in developing the model. This developed model predicts design and off-design performance with a precision of one percent over a wide range of operating conditions so that on-line real-time performance monitoring can accurately establish both current performance and expected performance and also help the operator identify problems before they would be noticed.

General CAE Package Advancing Development for FEM Structural Vibration Analysis

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Key Words : FEM, BEM, Pre-processing, Solver, Post-processing, 3-dimensions, CAE, Structural-Vibration

Abstract : The research results of the MOST Industrial analysis Software Development Project(2001, 1st year) are presented. This paper describes the general CAE package development of a coupled Finite Element-Boundary Element Method. Structures are three dimensionally modelled to simulate the structural vibration and the acoustic pressure distribution in the air or in the water. The directivity patterns of the acoustic field formed from the vibrating transducer are also resulted. In addition, the deformation of the model is shown in temporal graphic motion. This paper overall shows the generalized FE-BEM code programming and packaging. The software package includes pre-processor, solver, post-processor and network server service for remote solver analysis. The accuracy of the simulation results is verified by comparing between full matrix solution and sparse matrix solution.