<<结构完整性的评价、检验和监测>>

图书基本信息

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前言

This book is the sixth volume of the proceedings for the symposium series on Fracture Mechanics, an annual conference devoted to the exchange of information among the institutes and research centers in China and abroad. FM2008 is held in Hangzhou, Zhejiang Province from October 31 to November 5, 2008. The first FM conference was held in 2003 at East China University of Science and Technology, Shanghai. Since then, the FM annual meetings have taken place at different cities and regions. This includes FM2004 in Huangshan, Anhui Province, FM2005 in Zhengzhou, Henan province, FM2006 in Nanjing, Jiangsu Province and FM2007 in Changsha, Hunan province. These annual events are indicative of the fact that the FM symposium series has played an important role in promoting information exchange, inspiring new ideas, integrating practical and research findings and breaking new grounds for the young generation. It cannot be denied that the efforts from the conference committee members and the local organizers have made the conference in the past five years a great success. Even though different aspects of structural integrity have been dealt with in the past, it needs to be emphasized that the conventional approaches to evaluating structural integrity - rule-of-thumb guidelines, with excessive safety margins - leave much to be desired in today's highly competitive business climate. The trend of integrating inspection, monitoring techniques and assessment approaches has been advanced in relation to multiscaling. A key step in research lies in the translation of the low scale material parameters to the macroscopic scale where the designer can specify the material properties. The process can entail several orders of scale transitions, not to mention the ability to monitor minute changes in plant or infrastructure condition with a high degree of confidence. Such a demand has led to continuous advances in structural integrity technology and risk based assessment. The assessment of structural integrity may involve condition monitoring, intelligent computing, life cycle analysis, non-destructive evaluation, probabilistic methods for specimen and structure scales. It is a necessary concept to be used in design and manufacture, as well as the subsequent life of the product. These undertakings will be emphasized in FM2008 which aims to integrate new development from diverse areas of science and technology in relation to structural integrity. Besides the integration of theory and practice, science and technology, multidisciplinary exchange of ideas is encouraged. The symposium (FM2008) is co-organized by Zhejiang University of Technology, East China University of Science and Technology, National Engineering Research Center of Pressure Vessels and Pipelines Safety Technology (General Machinery Research Institute), Nanjing University of Technology, Zhejiang University, Zhengzhou University, Changsha University of Science and Technology and Shandong University, and co-sponsored by the Chinese Pressure Vessel Institution, the High Temperature Strength of Materials Committee of Chinese Materials Institution, Natural Science Foundation of China and General Administration of Quality Supervision, Inspection and Quarantine of China. On behalf of the organizing committee, we would like to thank the above co-organizers who made FM2008 possible. We also appreciate the efforts of the program committee members in reviewing and selecting the papers. We are grateful for Professor George C. Sih for his constant support to the symposium series. We are indebted to Professor Zhengdong Wang for his time to collect papers and edit this book. Special thanks will go to the authors whose contributions make FM2008 unique.

内容概要

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