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## 结构抗震分析中的计算机仿真技术(PDF)

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Title: Computer simulation technology in seismic analysis of structures

作者: [顾祥林<sup>1</sup>](#); [彭斌<sup>2</sup>](#); [黄庆华<sup>1</sup>](#)

1. 同济大学建筑工程系, 上海200092;
2. 上海理工大学城市建设与环境工程学院, 上海200093

Author(s): [GU Xiang-lin<sup>1</sup>](#); [PENG Bin<sup>2</sup>](#); [HUANG Qing-hua<sup>1</sup>](#)

1. Department of Building Engineering, Tongji University, Shanghai 200092, China;
2. College of Urban Construction & Environment Engineering, Shanghai University of Science and Technology, Shanghai 200093, China

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摘要: 结合已有的研究成果和应用实例,介绍了计算机仿真技术在结构抗震设计、既有结构抗震性能评估、极端外部作用下结构反应分析、区域抗震规划与评估等领域的应用现状及最新进展。强调了能够解决不连续、大变形问题的数值分析方法在这一领域的意义。指出建立或完善构件层次的滞回本构模型和多参数破坏准则,研究结构解体前后的阻尼机制,探讨数据库技术在仿真系统中的应用,发展新型结构体系的分析模型以及具有初始损伤结构的地震反应分析方法,引入并行计算技术等对推动计算机仿真技术在结构抗震分析中的应用具有重要的意义。另外,仿真分析方法必须经工程实例或结构试验验证。

Abstract: Based on available research results and simulation cases,applications and progresses of computer simulation technology in seismic design of structures,seismic assessment of existing structures,analysis of structural responses under extreme external actions and seismic planning or assessment of big area system in a city are introduced.Significance of using numerical

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methods which are appropriate to discontinuous and large deformation problems is emphasized. Significance of some measures to improve the application of computer simulation technology in structural seismic analysis, including establishing or upgrading the hysteresis model and multiparameter failure criteria of structural members, studying the damping mechanism of structures during decomposing, discussing the application of database technology in simulation system, developing analysis models for innovating structures and algorithms for analysis of earthquake responses of structures with initial damage, and introducing parallel technology is pointed out. Also, it is very important to verify the simulation results using engineering records or structural tests.

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