

The Research on Behavior of Material and Components in Low Temperature

Bai Haiyang Ding Dawei Gao Xuanqiao Wang Weihua
(Institute of Physics, Chinese Academy of Sciences)

Abstract : ZrTiAlV alloys have low density and excellent mechanical properties. Thus this makes it possible to replace traditional materials as moving components in spacecraft. This paper focuses on the application of ultrasonic measurement technique to simulate space alternating temperature cycle treatment on ZrTiAlV alloy elastic modulus. We found that treatment cycle alternating temperature within the range of -196 ~ 200 can increase the elastic modulus of the alloy and hardness, but also increases the number of cycles, these mechanical parameters showing increasing trend. We believe that this is the new Zr alloys have enough potential to be an important long-life performance of the key components of spacecraft materials.

Key Words : ZrTiAlV alloy ; Low temperature; Elastic modulus

阅读全文链接(需实名注册) : <http://www.nstrs.cn/xiangxiBG.aspx?id=50835&flag=1>

“工程地质灾害预测的理论及方法” 2010年度报告

李世海 周东 刘晓宇 冯春 刘天莘
(中国科学院力学研究所)

摘要 : 对已有工程地质灾害的案例数据进行收集整理, 并开展地质调查, 对地质灾害体尤其是土石混合体边坡和岩质边坡进行了分类。开发了针对典型滑坡的实时监测设备, 建立了原型斜坡的监测数据库。形成了地质灾害数值模拟软件的框架, 确定了灾害各阶段数值模型的研究方向。

关键词 : 工程地质灾害 土石混合体边坡 岩质边坡 监测设备 数值模拟

Annual Report 2010 for The Prediction Theory and Methods for Engineering Geological Disaster

Li Shihai Zhou Dong Liu Xiaoyu Feng Chun Liu Tianping
(Institute of Mechanics, Chinese Academy of Sciences)

Abstract : Typical cases and basic data of engineering geological disasters are collected and classified by research team 6 in year 2010. Many advances and breakthroughs have been made which include Classification for earth-rock aggregate slope and rock slope in geologic hazards based on geological survey, real time monitoring equipment for typical landslides, monitoring database of in-situ slope, framework of numerical software for geological disasters, etc. Research interests for numerical model in each stage of the geological disaster are determined. Overall, the annual tasks of the first year have been successfully accomplished.

Key Words : Engineering geological disaster; Earth-rock aggregate slope; Rock slope; Monitoring equipment; Numerical Simulation

阅读全文链接(需实名注册) : <http://www.nstrs.cn/xiangxiBG.aspx?id=50749&flag=1>