

基于激光多普勒测速法的 $2 \times 106\text{m/s}^2$ 高冲击校准技术

作者: 李芝绒, 王胜强, 潘文

单位: 西安近代化学研究所

基金项目: 20万g超高冲击校准标准

摘要:

在高冲击传感器动态性能校准中, 实现高量程、宽脉冲激励是目前高冲击校准急需解决的问题。采用速度改变法校准方法测量砧体运动速度, 建立高冲击校准系统。分析碰撞系统的作用原理, 提出调整和控制激励脉宽的方法; 分析测试结果表明: 高冲击校准系统校准量程为 $2 \times 106\text{m/s}^2$, 激励脉宽在 $2 \times 106\text{m/s}^2$ 时大于 $100\mu\text{s}$, 校准冲击灵敏度的扩展不确

关键词: 高冲击校准; 速度改变; 气炮冲击机; 激光多普勒

Calibrating Technology for High Shock at $2 \times 106\text{m/s}^2$ Based on Laser D

Author's Name:

Institution:

Abstract:

It is the urgent task to achieve wide range and wide bandwidth of impulse excitation in dynamic performance calibration of calibration device was based on velocity variation calibrating method, using air guns as excitation sources. The method for presented through analyzing the principles of the excitation testing system. Velocity variations of sensor were measured by technology. The velocity accuracy has been improved. Experimental results show that the range of the calibration devices is range of $2 \times 106\text{m/s}^2$ and extended uncertainty for shock sensitivity calibration is 5% ($k=2$).

Keywords: calibration of high shock; velocity increment; impact machine using air gun; laser-doppler

投稿时间: 2012-08-14