

DPIV技术在高超声速通气模型内阻测量中的应用(PDF下载)

《应用力学学报》[ISSN:1000-4939/CN:61-1112/O3] 期数: 2014年02期 页码: 182-187 栏目: 出版日期: 2014-04-01

Title: Applications of DPIV technique in internal drag measurement for hypersonic flowthrough model

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关键词: [DPIV](#); [通气模型](#); [高超声速飞行器](#); [内阻测量](#)

分类号: O357.5+4; O357.4+3

DOI: 10.11776/cjam.31.02.A010

文献标识码: A

摘要: 针对高超声速通气模型内阻测量存在的误差大的问题,首次采用DPIV技术和总压测量排架相结合的方法测量了超燃发动机尾喷管流场速度矢量和皮托压力分布,间接获得了内流出口处平均马赫数和静压平均值,从而实现了高超声速通气模型内阻测量。研究表明: DPIV试验获得的粒子图像可以清楚地显示喷管出口位置内外流的分界面、内外流混合层的尾迹、通气模型外表面边界层; DPIV试验获得的速度矢量场结果准确、精度高,能够提供远远超出传统测量技术所能提供的流场信息。DPIV技术作为一种有力的测量手段,在高超声速飞行器研究中能够发挥重大的作用。

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