

激光与光电子技术应用

基于轨迹图像的雾滴颗粒运动速度光电测量方法

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摘要: 为了对双介质喷嘴雾滴颗粒的运动速度分布进行测量, 建立了基于波长为532nm连续激光器和工业相机组成的在线测量系统, 并获得了雾滴的轨迹图像。采用Steger方法对获得的粒子轨迹图像进行了图像处理, 取得了雾滴颗粒的速度分布的数据。结果表明, 所开发的基于粒子轨迹图像雾滴速度分布光电测试方法可以满足在线测量的要求。

关键词: 激光技术 轨迹图像 速度分布 双介质喷嘴 图像处理 烟草加香

Measurement method of the droplet particle velocity based on the trajectory images

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Abstract: In order to measure the velocity distribution of dual-media nozzle droplet particles, an on-line measurement system was established based on continuous laser at 532nm wavelength and industrial cameras. The droplet trajectory images were obtained. The Steger method was used to process the particle trajectory images. The velocity distribution of droplet particles was extracted. The results show that the test method for measuring the speed distribution of the droplet particles based on particle trajectory images, meets the requirements of the online measurement.

Keywords: laser technique track image velocity distribution dual media nozzle image processing tobacco flavoring

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