

光电仪器

一种新型数字式便携光学实验仪

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摘要 介绍了一种新型数字式便携光学实验仪, 该仪器具备光学实验、课堂演示、光学研究和光学测试等多种功能, 可完成波动光学中干涉、衍射、全息、散斑以及几何光学中成像等工作。该仪器设计了“又”形布置的轨道以及“工”形支架, 实现了3维无级可调, 可对光路进行精确调节。此外, 以三基色调色原理为理论基础, 自行开发了图像处理软件和层式仪器结构。将PC主板与光学台融合为一体, 可对图像进行实时数字采集与处理。与传统实验设备相比, 该仪器极大地拓展了数字光学实验的应用空间。

关键词 [便携式仪器](#) [图像处理](#) [光学实验仪](#)

分类号

A novel digital portable optical experimental instrument

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Abstract A novel digital portable optical experimental instrument is introduced, which can be used for optical experiment, demonstration in class, research and test. It can fulfil interference, diffraction and holography in wave optics, as well as imaging in geometric optics. The instrument is designed with an orbit in “又” form and a bracket in “工” form to realize a smooth and accurate adjustment. An image processing software and a multilayer instrument which connects the PC mother board with an optical bench were developed base on RGB average method. The image can be gathered and processed in real time. Compared to the traditional experiment set up, this instrument could expand the scope of the digital optical experiment significantly.

Key words [portable instrument](#) [image processing](#) [optical experiment instrument](#)

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