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计量测试

纳米计量与原子光刻技术分析

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摘要 为了说明原子光刻（Atom Lithography）在纳米计量及传递作用中的特殊地位，首先对纳米计量标准及其现状进行了简要介绍，提出纳米计量中原子光刻的基本概念和优势，结合原子光刻实验装置对原子光刻技术的工作机理进行了分析。结果表明，可以通过原子光刻技术得到纳米量级刻印条纹，为纳米计量及标准传递提供更加精确的手段。最后对常见的2种原子光刻技术——沉积型原子光刻和虚狭缝型原子光刻进行了阐述，指出2者的不同之处，为不同条件下原子光刻提供了一定的借鉴。

关键词 纳米计量 纳米传递 原子光刻

分类号

Analysis of nanometrology and atom photolithography

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Abstract In order to explain atom photolithography's role in nanometrology and standard transfer, nanometrology and its status are briefly introduced, the principle of atom photolithography and its features in nanometrology are presented. The mechanism for atom photolithography was analyzed with an experimental setup of Cr atom photolithography. The experimental results indicate that nanometer level stripe could be obtained to provide more precise means for nanometrology and standard transfer. Finally, two kinds of atom photolithography technology, deposit atom and dummy slit atom photolithography are elaborated, and their differences are pointed out. The technology mentioned in this paper can be used as a reference for atom photolithography under different conditions.

Key words nanometrology transfer standard atom photolithography

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