

技术及应用

## X射线源针孔成像方法可行性研究

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**摘要** 为检验利用针孔成像对X射线源进行研究的可行性, 对X射线针孔成像系统进行优化设计, 搭建了1套X射线源针孔成像装置。从理论上对X射线源的位置和强度发生变化时图像的相应变化进行了计算和预估, 并用实验加以验证。结果表明, 像斑中心位置的移动和像斑灰度值的变化分别与X射线源位置和强度的变化在一定范围内存在线性关系, 由此证明了利用针孔成像对X射线源进行空间定位及定量研究的可行性。本文结果对X射线源针孔成像的系统设计具有参考意义。

关键词 [X射线源](#); [针孔成像](#); [位置](#); [强度](#)

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## Feasibility Study on X-ray Source With Pinhole Imaging Method

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**Abstract** In order to verify the feasibility of study on X-ray source with pinhole imaging method, and optimize the design of X-ray pinhole imaging system, an X-ray pinhole imaging equipment was set up. The change of image due to the change of the position and intensity of X-ray source was estimated with mathematical method and validated with experiment. The results show that the change of the spot position and gray of the spot is linearly related with the change of the position and intensity of X-ray source, so it is feasible to study X-ray source with pinhole imaging method in this application. The results provide some references for the design of X-ray pinhole imaging system.

**Key words** [X-ray source](#) \_ [pinhole imaging](#) \_ [position](#) \_ [intensity](#)

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