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Ansto



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Elemental Contrast X-ray Tomography Using Ross Filter Pairs

Here we present x-ray imaging experiments based on the use of Ross filter pairs. Although such Ross filter arrangements have been applied in proof-of-principle spectroscopy experiments, to date there have been no reports of this approach used for full-field x-ray imaging. Here we report on the experimental demonstration of Ross filter pairs being used for quasi-monochromatic, full-field imaging in current laboratory based x-ray sources which are polychromatic and not tuneable. This lack of monochromaticity limits the range of applications for these sources and in particular it reduces the elemental specificity of laboratory based x-ray imaging experiments. However, Ross filter arrangement has several important benefits for laboratory based x-ray imaging including, as we demonstrate, elemental contrast enhancement. The method is demonstrated both for two-dimensional radiography and for three-dimensional x-ray tomography.

Keywords or phrases (comma separated)

elemental contrast, x-ray imaging, Ross filter

Are you a student?

No

Do you wish to take part in</br>the Student Poster Slam?

No

Are you an ECR? (<5 yrs</br>since PhD/Masters)

No

What is your gender?

Female

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Track Classification: Imaging