



Contribution ID: 80

Type: Posters

LiF detectors-Polycapillary Systems as a New Approach for Advanced X-Ray Imaging

Tuesday, 29 November 2011 14:31 (1 minute)

One branch of X-ray imaging studies at X Lab Frascati has been dedicated to the design of novel optics-detector solutions aiming in creating a compact laboratory X-ray microscopy apparatus. Based on our experience in the use of both capillary/polycapillary optical systems and LiF imaging detectors we have recently tested a new combination of these techniques. The potential of the optics both to concentrate and to shape X-ray radiation enforced by the high performances in terms of spatial resolution/dynamic range of LiF imaging detectors allow us to use very simple imaging techniques, like the contact one, particularly suitable for compact imaging systems. In this report we are going to present our first results on submicron X-ray imaging of solid thick samples, as well as possible future development of the proposed schemes in the fields of biomedical imaging, characterization of X-ray sources, material science, photonics, etc.

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Session Classification: Poster Session: presentation of posters