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专刊

Preliminary attempt on maximum likelihood tomosynthesis reconstruction of DEI data

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摘要

Tomosynthesis is a three-dimension reconstruction method that can remove the effect of superimposition with limited angle projections. It is especially promising in mammography where radiation dose is concerned. In this paper, we propose a maximum likelihood tomosynthesis reconstruction algorithm (ML-TS) on the apparent absorption data of diffraction enhanced imaging (DEI). The motivation of this contribution is to develop a tomosynthesis algorithm in low-dose or noisy circumstances and make DEI get closer to clinic application. The theoretical statistical models of DEI data in physics are analyzed and the proposed algorithm is validated with the experimental data at the Beijing Synchrotron Radiation Facility (BSRF). The results of ML-TS have better contrast compared with the well known `shift-and-add' algorithm and FBP algorithm.

关键词 diffraction enhanced imaging, maximum likelihood reconstruction, tomosynthesis
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