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Characterization of Thomson x-ray sources for imaging applications

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A new generation of X-ray sources based on Thomson back-scattering is under development. They can provide quasi-monochromatic, spatially-coherent X-rays with a fluence suitable for imaging applications. Possible applications to absorption and phase contrast imaging will be discussed. Due to the peculiar nature of the source, specific tools have to be developed to characterize its spectral and spatial properties. A simulation software and experimental techniques will be presented. Simulation results for phase contrast imaging with a Thomson source will be quantitatively compared to experimental data.