

Region-of-Interest reconstruction in the presence of shielding

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Our central question

What artefacts arise as a result of ignoring parts of the object?

- algorithm: FBP, algebraic methods (SIRT)
- padding

Three configurations



hom. casting / transparent.

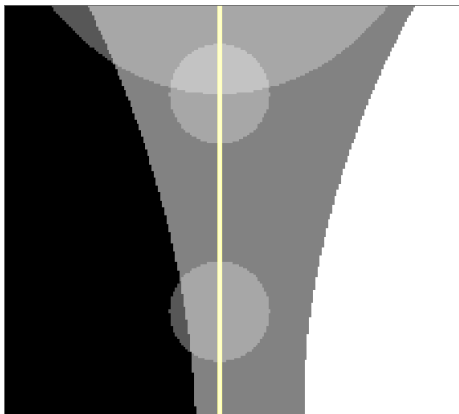


dense.



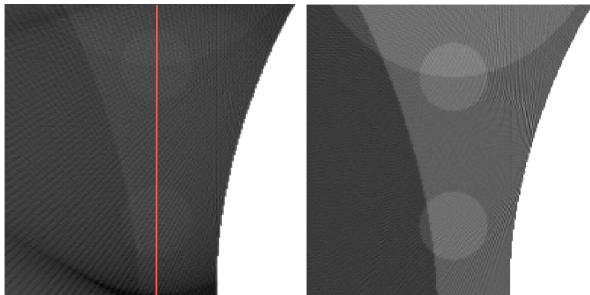
inhomogeneous
casting

Region of interest, original phantom



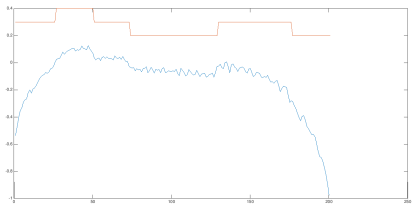
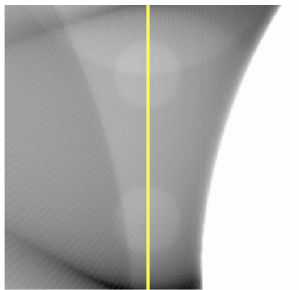
- modified Shepp-Logan phantom, element to the right of ROI highly absorbing

Region of interest, FBP reconstruction



- left: ROI reconstruction with padding; right: reconstruction from full data
- modified for visibility

Region of interest, SIRT reconstruction



- ROI reconstruction with padding

Outlook

- efficient use of full data to improve ROI reconstruction (wavelet-based, Hilbert transform)
- How to fill in the missing projections? (besides padding)