http://arxiv.org/abs/astro-ph/0601306 (Ebeling et al.) This paper describes a long-standing, heavily-used method of adaptive kernel smoothing. Produces beautiful images (e.g. They dominate research publications and press images, http://chandra.harvard.edu), but its statistical characteristics are poorly established: we never know what features are significant.

http://arxiv.org/abs/astro-ph/0305133 (Townsley et al.) Appendix C of this paper describes another adaptive kernel smoother which attempts to establish the signal/noise ratio of features. It is used here (and rarely elsewhere) to map diffuse emission in the presence of nuisance unresolved (point-like) sources.

http://arxiv.org/abs/astro-ph/0512074 (Diehl & Statler) This is a new method based on Voronoi tesselations. Tesselations have been discussed for years, but are rarely used.

http://arxiv.org/abs/astro-ph/0108429 (Freeman et al.) This is a wavelet-based method designed for Poisson images very widely used for Chandra data. The goal here is not image restoration/visualization, but the emergence of a list of unresolved sources. Even though the wavelet basis doesn't take cognizance of the known telescope properties (the "point spread function"), it still does a remarkably nice job finding sources. But we never know the significance of weak sources (i.e. the search threshold is arbitrary). Authors Peter Freeman & Vinay Kashyap were at the SAMSI meeting in January.

http://search.barnesandnoble.com/booksearch/isbnInquiry.asp?isbn=3540428852
(Starck & Murtagh 2002)
This is a slim but excellent monograph by Europe's leading astrostatisticians that concentrates on wavelet anaysis of astronomical images and multiresolution analysis. Lots of sophisticated mathematical background, as well as practical examples.