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George C Papanicolaou* (papanico@math.stanford.edu), Department of Mathematics, Stanford university, Stanford, CA 94305. *Interferometric array imaging in clutter*. Preliminary report.

I will introduce and discuss interferometric array imaging methods. They rely on the back propagation of suitably constructed correlation functions of the data and are particularly well suited for imaging in cluttered environments. The key to the success of these methods is their ability to adapt to the unknown environment (the clutter) so as to minimize the uncertainty (instability) of the image at the expense of some resolution loss. I will discuss in some detail this tradeoff and relate it to other problems in statistical estimation, not necessarily in imaging. I will finally discuss the issue of optimal illumination and waveform selection and its impact on imaging. This is joint work with L. Borcea and C. Tsogka. (Received September 28, 2005)