

1077-35-1850

**Vincent Jugnon\*** (vjugnon@math.mit.edu), **Habib Ammari**, **Josselin Garnier** and **Elie Brein**. *Coherent Interferometry Algorithms for Photoacoustic Imaging*.

We develop new Coherent Interferometry (CINT) algorithms to correct the effect of an unknown cluttered sound speed (random fluctuations around a known constant) on photoacoustic images. By back-projecting the correlations between the pre-processed pressure measurements, we show that we are able to provide statistically stable photo-acoustic images. The pre-processing is exactly in the same way as when we use the circular or the line Radon inversion to obtain photo-acoustic images. Moreover, we provide a detailed stability and resolution analysis of the new CINT-Radon algorithms. We also present numerical results to illustrate their performance and to compare them with Kirchhoff-Radon migration functionals. (Received September 21, 2011)