Resolution issues and imaging techniques

Pierre Garapon

April 19, 2010

Abstract

It is well known that when imaging with waves probed far away from the object to investigate, one can only hope to recover information within the resolution limit set by the wavelength (or bandwidth) that is used. However, it is not always clear what mathematical meaning should be given to this. Moreover, some imaging problems are formulated with data collected both in the far field and in the close field, an example of that being the elastography inverse problem, that consists of estimating the shear modulus of a soft elastic material, observing its dynamical response to a mechanical excitation. In this talk, I will try to emphasize the importance of the resolution limits in imaging, and present a case (elastography) where the imaging algorithm should be designed to exploit the information at different scales.