

Inverse Problems Network Meeting 3

Thursday, 26th April 2018 - Friday, 27th April 2018

Centre for Inverse Problems, UCL

Abstract of Talk

INVERSE PROBLEM FOR THE HELMHOLTZ EQUATION WITH CAUCHY DATA: STABILITY AND RECONSTRUCTION

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We study the performance of Full Waveform Inversion (FWI) from time-harmonic Cauchy data via conditional well-posedness driven iterative regularization. The Cauchy data can be obtained with dual sensors measuring the pressure and the normal velocity. We define a novel misfit functional which, adapted to the Cauchy data, allows the independent location of experimental and computational sources. The conditional well-posedness is obtained for a hierarchy of subspaces in which the inverse problem with partial data is Lipschitz stable. Here, these subspaces yield piecewise linear representations of the wave speed on given domain partitions. This is joint work with Giovanni Alessandrini, Maarten de Hoop, Florian Faucher and Eva Sincich.