

A Near-Optimal Aperture Synthesis Imaging-method for Industrial-Scale ASI work

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Aperture Synthesis Imaging is one of the core new capabilities of the EISCAT-3D system, and the technique that will give the new system sub-beam horizontal resolution. In this presentation an inversion technique for the aperture synthesis imaging problem, with near-optimal numerical efficiency and near-optimal statistical performance will be shown. The inversion-method is based on ordinary second-order Tikhonov regularization with automatic measurement-based adjustment of regularization-parameter based on the statistical feasibility principle. The achievable resolution and sensitivities for different array-configurations will be discussed.