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## **Applications of Image Space Reconstruction Algorithms to Ionospheric Tomography**

Abstract:

We present and discuss two algorithms of the class known as Image Space Reconstruction Algorithms that we are applying to the solution of large-scale ionospheric tomography problems. ISRAs have several desirable features that make them useful for the reconstructions used for ionospheric tomography. In addition to being positive definite, ISRAs are amenable to sparse-matrix formulations and are fast, stable, and robust. We present the results of our studies of two types of ISRA: the Least-Squares Positive Definite (LSPD) and the Richardson-Lucy algorithms. We compare their performance to the Multiplicative Algebraic Reconstruction (MART) and the Conjugate Gradient Least Squares algorithms.