

1164-35-81

**Jiguang Sun\*** (jiguangs@mtu.edu), 1400 Townsend Dr., Fisher 313, Houghton, MI 49931. *A deterministic-statistical approach to reconstruct moving sources using sparse partial data.*

We consider the reconstruction of moving sources using partial measured data. A two-step deterministic-statistical approach is proposed. In the first step, an approximate direct sampling method is developed to obtain the locations of the sources at different times. Such information is coded in the priors, which is critical for the success of the Bayesian method in the second step. The well-posedness of the posterior measure is analyzed in the sense of the Hellinger distance. Both steps are based on the same physical model and use the same set of measured data. The combined approach inherits the merits of the deterministic method and Bayesian inversion as demonstrated by the numerical examples. (Received January 13, 2021)