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Performance Comparison of Joint Diagonalization Structure (JDS) Method and Wideband MUSIC Method

Authors : Sandeep Santosh, O. P. Sahu

Abstract : We simulate an efficient multiple wideband and nonstationary source localization algorithm by exploiting both the non-stationarity of the signals and the array geometric information.This algorithm is based on joint diagonalization structure (JDS) of a set of short time power spectrum matrices at different time instants of each frequency bin. JDS can be used for quick and accurate multiple non-stationary source localization. The JDS algorithm is a one stage process i.e it directly searches the Direction of arrivals (DOAs) over the continuous location parameter space. The JDS method requires that the number of sensors is not less than the number of sources. By observing the simulation results, one can conclude that the JDS method can localize two sources when their difference is not less than 7 degree but the Wideband MUSIC is able to localize two sources for difference of 18 degree.

Keywords : joint diagonalization structure (JDS), wideband direction of arrival (DOA), wideband MUSIC
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