



# **RANDOM SIGNAL FREQUENCY IDENTIFICATION BASED ON AR MODEL SPECTRAL ESTIMATION**

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*Submitted: Jan. 6, 2016      Accepted: Mar. 22, 2016      Published: June 1, 2016*

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*Abstract-The power spectral estimation is an important element in the random signal analysis. The paper will introduce the principles of the classical power spectral estimation and modern power spectral estimation, analyses their characteristics and application in MATLAB simulation. The variance obtained by the classical power spectral estimation is inversely proportional to its resolution, the resolution of the modern spectral estimation are not subject to this restriction, but also the variance achieve greatly improvement, which is a great importance for improving the accuracy of the power spectral estimation. This paper mainly studies AR model of parametric modeling in the modern spectral estimation, and then uses the simulation between the classical power spectral estimation and modern power spectral estimation for comparison, verifies the analysis of the modern power spectral estimation based on AR model is more accurate than the classical power spectral estimation.*

**Index terms:** AR model; power spectral estimation; Burg algorithm.