

Fast ICA and Gaussian smoothing function denoising of NQR signal on Space.

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Abstract—Detection of Nuclear Quadrupole Resonance (NQR) signal in an open environment is a challenging task due to the presence of external random noise and interference. The work is investigated with a Fast independent component algorithm (Fast ICA), Gaussian smoothing function and multiple signals averaging to enhance Signal to Noise ratio (SNR) of NQR signal. Fast ICA helps in separating of two NQR signals with different frequencies and the Gaussian smoothing function is used to smoothen the signal. Simulation is carried out with -30 dB noise NQR signal. The results show that 28 dB gain in SNR is obtained after processing through proposed methods. The present method can be used for space probe applications for detecting nuclear substances in space

References: Use the brief numbered style common in many abstracts, e.g., [1], [2], etc. References should then appear in numerical order in the reference list, and should use the following abbreviated style:

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