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Signal induced breaking of universal noise statistical properties LUCA PEROTTI, DANIEL VRINCEANU, DANIEL BESSIS, Texas Southern University — We consider the Z-transform of a random time series, extension to the complex plane of the dicrete time Fourier transform. Regardless of the specific characteristics of the random signal itself, the singularities of the Z-transform are universally distributed. Addition of a regular signal to the random one locally perturbs this distribution. Deviations from universality therefore indicate the presence of regular signals even when low signal to noise ratio prevents their direct detection. We present examples suggesting that these properties can lead to practical applications such as the detection of faint transients in heavy noise.

Luca Perotti
Texas Southern University

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