Long-range and non-linear correlations in music scores

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The study of Music from the perspective of statistical Physics has been of great interest in the past few years. The study ranging from identifying patterns and power laws enable some understanding and characterization of music scores, to composition algorithms. We present an analysis of Music scores from different composers using detrended fluctuation analysis to estimate the Hurst exponent, we found that some Music scores show a crossover in the DFA function, this suggests that there are two types of correlations at different range. We also show that there is evidence of non-linear correlations using the magnitude and sign detrended fluctuation analysis method with the original time series and validated it with surrogate data.