Higher-Order Hurst Signatures: Dynamical Information in Time Series WILLIS FERENBAUGH, D.E. NEWMAN, Univ. of Alaska Fairbanks — Understanding and comparing time series from different systems requires characteristic measures of the dynamics embedded in the series. The Hurst exponent is a second-order dynamical measure of a time series which grew up within the blossoming fractal world of Mandelbrot. This characteristic measure is directly related to the behavior of the autocorrelation, the power-spectrum, and other second-order things. And as with these other measures, the Hurst exponent captures and quantifies some but not all of the intrinsic nature of a series. The more elusive characteristics live in the phase spectrum and the higher-order spectra. This research is a continuing quest to (more) fully characterize the dynamical information in time series produced by plasma experiments or models. The goal is to supplement the series information which can be represented by a Hurst exponent, and we would like to develop supplemental techniques in analogy with Hurst's original R/S analysis. These techniques should be another way to plumb the higher-order dynamics.

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