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Title: Adventures in Modern Time Series Analysis: From the Sun to the Crab Nebula and Beyond.

Abstract:

With the generation of long, precise, and finely sampled time series the Age of Digital Astronomy is uncovering and elucidating energetic dynamical processes throughout the Universe. Fulfilling these opportunities requires data effective analysis techniques rapidly and automatically implementing advanced concepts. The Time Series Explorer, under development in collaboration with Tom Lored, provides tools ranging from simple but optimal histograms to time and frequency domain analysis for arbitrary data modes with any time sampling. Much of this development owes its existence to Joe Bredekamp and the encouragement he provided over several decades. Sample results for solar chromospheric activity, gamma-ray activity in the Crab Nebula, active galactic nuclei and gamma-ray bursts will be displayed.