Astronomy Program Opening Workshop
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"Beyond Stationary Gaussian Processes: An overview of model based non-Gaussian time series analysis"

This talk will cover some of the standard time series models that form the basis of the Box & Jenkins approach to time series analysis, and their extensions in recent years. Specifically, I will introduce the Autoregressive (AR) class of non-Gaussian stationary models based on linear recursive relations and their differenced versions that can be used to model nonstationary time series data. I will also go over fractionally integrated processes that are useful for modelling time series with long range dependence, and ARCH/GARCH models that are suitable for modelling increased conditional variability. I will also discuss some simple model diagnostics based on the shape of the autocorrelation function (ACF) and some important properties of these models.