

Abstract: In this talk, I will first review some work on self-normalization for low dimensional time series and then present some recent work on change point testing and estimation for high dimensional data. In the case of testing for a mean shift, we propose a new test which is based on U-statistics and utilizes the self-normalization principle. Our test targets dense alternatives in the high dimensional setting and involves no tuning parameters. We show the weak convergence of a sequential U-statistic based process to derive the pivotal limit under the null and also obtain the asymptotic power under the local alternatives. An extension to testing for multiple unknown change points in the mean will also be presented with rigorous asymptotic theory and encouraging simulation results. Additionally, we illustrate how our approach can be used in combination with wild binary segmentation to estimate the number and location of multiple unknown change points.