Abstract: This paper proposes a novel methodology of multiple testing for detecting structural changes in each variable of high-dimensional time series data. The structural breaks are detected with controlling the false discovery rate (FDR) at a predetermined level. As for the goal, there are two main challenges. The first is that, due to the high dimensionality of the time series, it is difficult to determine in advance whether each variable is I(0) or I(1). The second challenge arises from the complex dependencies in both the time series and cross-sectional dimensions, which prevent use of conventional p-values from guaranteeing FDR control. Our multiple testing methodology tries to address these issues. This work is coauthored with Peiyun Jiang.