

STATISTICS COLLOQUIUM

MONDAY, MARCH 08, 2010

TALK: 4:00 PM — SCIENCE CENTER, ROOM 309

RECEPTION: 5:15 PM — SCIENCE CENTER, 7TH FLOOR

A Cramér Type Moderate Deviation for Maximum of the Periodogram with Application to Multiple Tests in Gene Expression Time Series

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ABSTRACT

The periodogram is a fundamental tool in spectral analysis and often used to detect periodic patterns in various applications. In this talk Cramér type moderate deviations for the maximum of the periodogram and its studentized version are derived. The results are then applied to the multiple testing problems in gene expression time series. It is shown that the level of the multiple tests is accurate provided that the number of genes G and the sample size n satisfy $G = \exp(o(n^{1/3}))$.

This talk is based on a joint work with Weidong Liu.