國 立 東 華 大 學 應 用 數 學 系
專 題 演 講

主講人：銀慶剛博士

> Institute of Statistical Science, Academia Sinica

講　　題： Moment Bounds and Multi-step Prediction of Fractional Time Series

　　　　　　Models

時　　間：101年11月30日(星期五)　15:20-16:50

地　　點：理學院A324會議室

摘　要

　We derive moment bounds for the conditional sum of squares (CSS) estimate in parametric fractional time series models in which not only is the memory parameter unknown, but one may not know whether it lies in the stationary/invertible region or the nonstationary or noninvertible regions. This result substantially extends the earlier work of Chan and Ing (2011, Annals of Statistics), hich can only be applied to stationary time series models. By virtue of this bound, an asymptotic expression for the corresponding multi-step mean squared prediction error (MSPE) is obtained.

　These asymptotic expressions not only offer means to assess the mutli-step prediction errors, but also explicitly demonstrate how the multi-step MSPE manifests with the model complexity and the dependent structure, thereby shedding light about the intriguing multi-step prediction behaviors of the underlying non-stationary long memory processes. An interesting comparison between the CSS predictor and the least squares predictor in integrated autoregressive processes is also given. Our comparison shows that the former outperforms the latter if the integrated order is large, whereas it is the other way round if the integrated order is small. This talk is based on joint work with Ngai Hang Chan (CUHK) and Shih-Feng Huang (NUK).

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