**STANFORD UNIVERSITY**

**DEPARTMENT OF STATISTICS**

# DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, June 6, 2000
Sequoia Hall Rm. 200
(Cookies at 3:45 in 1st Floor Lounge)

*Rainer von Sachs*
*Universite Catholique de Louvain, Belgium*

## A SLEX-Wavelet model for spectral analysis of bivariate nonstationary time series

We propose a new method for analyzing bivariate nonstationary time series which is based on the SLEX (Smooth Localized Complex EXponential) transform, a library of orthonormal complex-valued transforms. Simultaneously this method segments the data into approximately stationary blocks and provides for automatic smoothing of spectral and cross spectral estimates at each block by GCV.

By work in progress we further propose a new SLEX-Wavelet model of nonstationary processes including a time-varying spectrum which allows us to develop asymptotic theory on the consistency of our SLEX estimation method.

Our analysis is motivated from application to an EEG data set recorded during an ellipetic seizure.

This work is joint with H. Ombao, U Pittsburgh, B. Malow, UMICH Ann Arbor, Wensheng Guo and the late Jonathan Raz, UPENN, Philadelphia.