



統計科學研究所

INSTITUTE OF
STATISTICAL SCIENCE



統計所學術演講



中研院統計所

Seminar

Title : State Transformation on Time Series and Its
Mathematical Model

Speaker : Prof. Chien-Chang Yen (嚴健彰副教授兼系主任)
(Department of Mathematics, Fu Jen Catholic
University)

Time : 10:30 ~ 12:00, Monday, February 19, 2024

Place : Auditorium, B1F, Institute of Statistical Science

Abstract

We propose a new transform of time series from the values to states and this transformation can do the pre-characterization for the time series. Through this transformation, it is easy to distinct the white noise and random walk on time domain. This state transformation uses the successive values and the equilibrium value to define a state. Since there are three values, we can define six states from the permutation of these three values. Furthermore, we employ a non-linear first order differential equation model to probe the convergence rate of time series. This approach could provide the more information for the time series. However, this ordinary differential equation is first order, but it is non-linear. There is a bifurcation solution. A numerical simulation should be used to solve the ordinary differential equation under general situations. In the reality, we apply our proposed method on the five index markets and the atmospheric pressure, temperature, humidity of the weather of Taiwan.

※ Tea reception starts at 10 : 10.

※ Online live streaming through Cisco Webex will be available.