

Institute for Mathematics and its Applications
2011 Seminar Series: 13
University of Wollongong

Title: A weak hidden Markov chain-modulated model with application to asset allocation

Speaker: Rogemar S. Mamon (Department of Statistical & Actuarial Sciences, University of Western Ontario, Canada)

Time and Date: 3:30pm, Tuesday 21 February 2012

Location: Room 15.113 (Access Grid Room)

Abstract: A discrete-time weak hidden Markov model (WHMM) is proposed to capture both the switching of economic regimes and memory property of time series data. The drifts and volatilities of asset returns switch over time according to the WHMM dynamics. A multivariate filtering technique in conjunction with the Expectation-Maximisation algorithm is developed to obtain estimates of model parameters. An analysis of “switching” and “mixed” strategies in asset allocation is presented. The use of financial signal processing via filtering aids investors in determining the optimal investment strategy for the next time step. Numerical implementation is carried out on the datasets of Russell 3000 value and growth indices. We benchmark portfolio performances using three classical investment measures.

Joint work with: Matt Davison (Departments of Applied Mathematics, Statistical & Actuarial Sciences, and Richard Ivey School of Business, UWO) and Jean Xi (Department of Applied Mathematics, UWO)