

Summer 2012

## 2012 (Summer)

University of Dayton. Department of Mathematics

Follow this and additional works at: [http://ecommons.udayton.edu/mth\\_coll](http://ecommons.udayton.edu/mth_coll)



Part of the [Mathematics Commons](#)

---

### eCommons Citation

University of Dayton. Department of Mathematics, "2012 (Summer)" (2012). *Colloquia*. Paper 16.  
[http://ecommons.udayton.edu/mth\\_coll/16](http://ecommons.udayton.edu/mth_coll/16)

This Article is brought to you for free and open access by the Department of Mathematics at eCommons. It has been accepted for inclusion in Colloquia by an authorized administrator of eCommons. For more information, please contact [frice1@udayton.edu](mailto:frice1@udayton.edu), [mschlangen1@udayton.edu](mailto:mschlangen1@udayton.edu).

**Abstracts of the Colloquium Talks: Summer 2012**  
**Department of Mathematics**

<b>Date</b>	<b>Speaker and Title</b>	<b>Time/Location</b>
Thursday, Jul 11	Mashaël Alammari, University of Dayton Asymptotically Stable Solutions of a Nonlinear Volterra Integral Equation	2:30 PM, SC 323
Thursday, Jul 11	Amani Sayed, University of Dayton Classification of Solutions of Systems of Integrodifferential Equations	3:00 PM, SC 323
Monday, Jul 16	Murat Adivar, Izmir University of Economics Is convexity possible without connectedness?	2:30 PM, SC 216
Thursday, Jul 26	Natalia Medynets, University of Dayton Hedge Fund Performance and Strategies under Different Market Regimes	2:30 PM, SC 320
Tuesday, Jul 31	Asma Alhazmi, University of Dayton Analysis and Comparison of Accuracy and Profitability of Japanese Candlestick Signals in Trading High Volatility versus Low Volatility Stocks	2:30 PM, SC 320
Tuesday, Jul 31	Xin Yu, University of Dayton Comparative Analysis between Contrarian and Momentum Strategies in the American Stock Market	3:00 PM, SC 320
Tuesday, Jul 31	Tao Tian, University of Dayton Option Pricing Based Regime-Switching Recombining Tree	3:30 PM, SC 320
Thursday, Aug 2	Shaina Palda, University of Dayton	12:30 PM, SC 323

**Asymptotically Stable Solutions of a Nonlinear Volterra Integral Equation**

Mashaël Alammari

**Abstract:** In this paper we obtained the existence of asymptotically stable solutions of the nonlinear Volterra integral equation. We employed Schauder's Fixed Point Theorem as the primary mathematical tool.

**Classification of Solutions of Systems of Integrodifferential Equations**

Amani Sayed

**Abstract:** We give asymptotic classification of the positive solutions of a class of twodimensional nonlinear Volterra integro-differential equations. Also, we furnish necessary and sufficient conditions for the existence of such positive solutions.

**Is convexity possible without connectedness?**

Murat Adivar

**Abstract:** In this talk, a general convexity notion for the disconnected sets and functions on disconnected sets will be introduced. Moreover, a general duality notion for the convex cones and convex functions over disconnected domains will be established by means of the new convexity notion.

## **Hedge Fund Performance and Strategies under Different Market Regimes**

Natalia Medynets

**Abstract:** In this thesis we study hedge fund performance under different market regimes. The purposes of our study are to determine whether hedge funds are exposed to market risk; whether hedge funds exposed to market risk perform better or worse; what risk factors distinguish good or bad performers; and to find the strategy difference between good and bad performers during different market cycles.

## **Analysis and Comparison of Accuracy and Profitability of Japanese Candlestick Signals in Trading High Volatility versus Low Volatility Stocks**

Asma Alhazmi

**Abstract:** We determine the accuracy and profitability of Japanese candlestick signals in trading high volatility versus low volatility stocks. We introduce the important reversal patterns of the Japanese Candlestick and use it to determine whether the Japanese Candlestick gives a better or worse performance under different range of volatilities.

## **Comparative Analysis between Contrarian and Momentum Strategies in the American Stock Market**

Xin Yu

**Abstract:** There is extensive international evidence that the momentum strategy yields positive abnormal returns when short-term periods are considered, whereas the contrarian strategy is effective for long-term periods. This thesis focuses on the comparative analysis between these two strategies. We investigate in which time horizon the momentum and contrarian strategies are most profitable, and examine the sources of such profitability. Subsequently, we compare the abnormal returns of the momentum and contrarian strategies in each of their most profitable time horizons under different conditions to find out which strategy yields higher significant abnormal returns in the American stock market.

## **Option Pricing Based Regime-Switching Recombining Tree**

Tao Tian

**Abstract:** Our goal is to design an efficient Regime-Switching recombining tree (RS-tree) to calculate the option price based on the condition that the underlying stock price fits the regime-switching model. The RS-tree is efficient if it grows linearly as the time steps increase; as a result, we can use many more time steps to calculate the option price. Both European and American options will be calculated in this Regime-Switching model. Furthermore, we will test the sensitivity of the option prices and analyze the result. Then we will extend the RS-tree to  $m$  regime ( $m=4$ ).