

## **2009 Summer Undergraduate Research in Chemistry at Villanova University**

### ***A Modified Preparation of Silyl Geranial Towards the Synthesis of Sarcoglone***

Silviana Ruci, Ryan Sowers, Alexander Reif and Dr. Eduard Casillas

### ***The Cloning and Expression of Two Putative Ligand-gated Ion Channels***

Taseer Bhatti and Dr. Barry Selinsky

### ***Synthesis and Electrochemical Studies of Phenol-Substituted Benzimidazoles***

Thomas L. Wilson and Dr. Jared J. Paul

### ***Characterization of Dissolved Organic Matter in Greenland Ice Cores using Ultra-high Resolution FTICR-MS***

Nicole Harmuth and Dr. Amanda Grannas

### ***Synthesis and Optical Properties of Mn-doped Zn<sub>2</sub>SiO<sub>4</sub> Phosphor Nanoparticles***

Laura DeShullo and Dr. Temer Ahmandi

### ***Expression and Purification of a Trypanosome Membrane Protein***

Aasia Ferdous and Dr. Barry Selinsky

### ***The Characterization of 1,4-Bridged Halonium Ions using Isotopic Perturbation of Equilibrium***

Patrick O'Kane and Dr. Brian Ohta

### ***Synthesis and Characterization of Ruthenium Complexes Capable of Proton Coupled Electron Transfer***

Matthew Kasher and Dr. Jared Paul

### ***Cloning and Expression of a Putative Acetylcholine Binding Protein from *Nostoc punctiforme****

Victoria Piscicella and Dr. Barry Selinsky

### ***Analysis of Spirotetramat, Pymetrozin, Flonicamid and Azadirachtin by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) in Treated Eastern Hemlock Trees (*tsuga Canadensis*)***

Courtney Dillon and Dr. Anthony Lagalante

### ***The Further Study of Octamethylbiphenylene Reduction with Lithium and Progress Toward the Synthesis of Dodecamethylbinaphthylene***

Michael Turo and Dr. Joseph Bausch

### ***Synthesis and Characterization of Functionalized Graphite Nanofibers***

Elizabeth Assenmacher, John A. Hull, Aashish Tuladhar, Tim Pellenbarg, and Dr. Robert Giuliano

### ***Photochemical Degradation of Aldrin in a DOM Solution***

Shawn Morris and Dr. Amanda Grannas

### ***Progress Toward a Selective Alkane Metathesis System***

Jonathan Axtell and Dr. Richard R. Schrock (Massachusetts Institute of Technology)

## **The Research Experience**

Undergraduate research might be the single most important activity undertaken. One not only experiences hands-on involvement in the research activity, but also becomes part of the process and culture of research. The discussions with lab members and faculty advisors devising experiments and solving problems prepare students for what may come in the 'real world.' By

learning to work creatively and independently as an undergraduate gives one a distinct advantage when entering the workforce or applying to graduate or professional school.

For many years now, the Department of Chemistry has been able to support a number of students with Summer Research Fellowships. Funding for the fellowships usually comes from the generous contributions from local industries and from faculty research grants, with the University providing substantial awards of room and board. The result is a superior research experience for students and faculty alike!

The Department of Chemistry gratefully acknowledges the following for their continued support of undergraduate research at Villanova University:

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