



American Chemical Society Western Michigan Section April, 2017 Newsletter

Date set for First Fall Speaker

Dr. Scott Thorgard will be our first speaker for the fall season. The date and location of his talk will be disclosed in the next newsletter. We hope to set a time and location in September so keep that time frame in mind. An abstract of Scott's talk is below.

Electrochemical Collisions for Single Nanoparticle Analysis

Scott N. Thorgard

Electroanalytical methods based on particle/electrode collisions have enabled the time-resolved detection of *single* nano- or micron-scale objects. Such *electrochemical collision* experiments have recently been applied to numerous systems including the characterization of metal or semiconductor nanoparticles, and the selective detection of single viruses. In the experiments, individual nanoparticles (or biologicals) are detected in solution by their ability to enhance or inhibit electron transfer reactions occurring at an ultra microelectrode (UME) when they adsorb to the electrode surface. Electrochemical collisions have shown promise for investigations of nanomaterial properties and the detection of nanoanalytes at low concentration.

In my research group at Grand Valley State University, we are applying electrochemical collisions in multiple projects which will be highlighted in my talk. One project has focused on the detection of single nanoparticles of different metals (Pt, Rh, Pd, Au) using a variant of electrochemical collisions based on catalytic amplification. This project aims to probe differences in catalytic activity for nanoparticles of the different metals on a single particle basis. A second project has focused on the detection of electrically insulating particles by their ability to inhibit (block) mass transport at a UME. We have been successful in applying blocking collisions for the detection of *E. coli* bacteria at fM concentrations. The ongoing objectives of this research are to extend electrochemical collisions to new analytes and to develop novel schemes for the characterization of single nanomaterials.

Fifty and Sixty Year Members to be Honored

At our first fall meeting, eleven of our members will be presented with certificates marking their years of service and membership with the ACS. Five members have attained fifty years of membership and six have achieved sixty years with the ACS! Refreshments will be served. The honorees are listed below:

Fifty Year Members:

Dr. Larry Crawley, Byron Center
Dr. Norton Peet, Holland
Dr. James Przybytek, West Olive
Dr. Gary Richmond, Jenison
Dr. William Suggs, Ada

Sixty Year Members:

Dr. Irwin Brink, Holland
Dr. David Kaiser, Grand Rapids
Dr. Charles Kulier, Holland
Mr. Floyd Schnell, Fremont
Dr. George Vande Woude, Belmont
Dr. Kenneth Vos, Grand Rapids

March for Science

Join fellow scientist in a march for science. This is a satellite march off the one that will take place in Washington DC on April 22. The American Chemical Society has come out in support of the efforts of the march to highlight the importance of science in the US. It is nonpartisan and policy, not personality, oriented. After the speakers (DeVos courtyard, downtown GVSU campus) there will be a march/walk to Rosa Park Circle - depending on the time and size of crowd, may walk around the Federal Bldg and then head back to Rosa Park Circle. More details can be found at this event page:

<https://www.eventbrite.com/e/march-for-science-grand-rapids-michigan-tickets-33065448647>

Chemistry Olympiad



U.S. National Chemistry Olympiad

The West Michigan ACS offered the opportunity for local high school students to take the ACS Chemistry Olympiad qualifying exam during the month of March. Schools (teachers) that turned in exams were Hudsonville (Kevin Conkel), Holland Christian (Dale Eizenga), East Kentwood (Shelby Erskin-Seay) and Muskegon Catholic Central (Michael Holt). The teachers

hosted the written portion of the qualifying exam in their own schools and the top 10 student scores (limited to 2 from any one school) will be invited to GVSU on Friday, April 21 for completion of the National Chemistry Olympiad Exam which consists of multiple parts include a wet-lab component. This portion will be supervised by Dr. Blair Miller, Dr. Randy Winchester and Mr. Jim Krikke. The 20 top scoring students (nationwide) from the National Exam will spend two weeks at a study camp to undergo rigorous training. Based on their performance, four students will be chosen to represent the U.S. at the International Chemistry Olympiad to be held in Thailand between the dates of July 06 to 15.

Bus Trip to Pittcon

The local section helped sponsor a bus trip to Pittcon on Thursday, March 9. The bus will left around 6:15 am from the GVSU Seidman lot in Downtown GR and returned early in the evening. About 30 persons took advantage of this trip. Cost for the bus trip was \$10 for students, \$20 for ACS members and \$30 for non-members.



Hispanic Youth Leadership Conference

Hope College was the location for the Hispanic Youth Leadership Conference that was held for local middle and high school age students of Hispanic origin. The conference drew about 800 students from the area and many local businesses and schools presented vocational information for the young people. Our local ACS section was also there to give advice on careers in chemistry. Three executive committee members, Michelle DeWitt, Kevin Eggebeen and Jim Krikke, helped with the event which included a demonstration of luminol.

National Chemistry Week 2017

This year join us as the ACS celebrates National Chemistry Week (October 22– 28). The theme this year is "Chemistry Rocks!" Exploring the chemistry of rocks and minerals. Our section will once again be involved by having chemical demonstrations and activities for the community at **Woodland Mall on Saturday, October 21, 2017**. Our coordinator, Michelle DeWitt (dewittmi@gvsu.edu) has been busy organizing this event. Please contact her if you wish to host a booth for your school or business.



Congratulations!

The 2016 November/December issue of In Chemistry, an ACS publication for student members, gave recognition to the following schools in our section as winners of Student Chapter Awards. *Student chapter presidents are in italics.*

Aquinas College: Outstanding, *Nina Diklich & Nat Dunn*, Advisor Elizabeth Jensen

Hope College: Commendable, *Matthew Rolain & Lisa Savagian*, Advisor Jeffrey Johnson

Ferris State University: Honorable Mention, *Shane Douglas*, Advisor Pasquale DiRaddo

Grand Valey State University: Honorable Mention, *Emily Ingalls & C'arra Miller*, Advisor Scott Thorgaard

Items for the Newsletter may be submitted to James Krikke (GVSU) at krikkeji@gvsu.edu