Professional Development Grant Report- 2015

Arkansas Tech University

Participation in the Spring 2015 National Meeting of the American Chemical Society

By

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Department of Physical Sciences

August 26, 2015

Restatement of professional enhancement opportunity

Participation in the Spring 2015 National Meeting of the American Chemical Society provided a great opportunity for chemists to present their research as well as network with other chemical professionals. Professional development grant was obtained to facilitate my participation at the conference which took place in Denver - Colorado (22^{th} – 26^{th} March, 2015). I gave an oral presentation and two of my research students gave poster presentations.

Review of the professional enhancement opportunity

The PI conducts research on the design, preparation, and characterization of coordination compounds as catalysts for the production of hydrogen. Presenting our recent and exciting results at the ACS Nation meeting was an excellent opportunity to meet and exchange ideas with other chemical professionals in the field.

Summary of experiences had

The students had a great experience presenting their work at the national level and obtained some useful feedbacks. The students and I also benefited from the many plenary and keynote lectures on a variety of chemistry topics offered at the meeting.

Conclusion

I am grateful for the financial support from ATU Professional Development Grant that enabled me to present our work at the ACS National Meeting. Meeting program is attached.

781. Submarine groundwater discharge s a potential hidden pathway for eelgrass ecline in San Juan county. **E.L. Johnson**, Beets, J. Dixon, R.A. Lyons, P. Swarzenski, . Wyllie-Echeverria

782. Arsenic analysis and speciation of ater samples from Chihuahua México, y HG-CT-AAS. **V. Medina**, Y. Rodriguez, . Acosta, L. Ballinas-Casarrubias

783. Photodegradation of organic dyes sing quantum dots of Cd(Se,S) in aqueous olutions. **G. Rivera Rodriguez**, O. Perales-erez, F.R. Roman, S. Bailon-Ruiz, L. Alamo-Nole

784. Photodegradation of antibiotics in queous solutions using quantum dots of Cd(Se,S). **I.N. Leon Feliciano**, O. Perales-Perez, R. Roman, S. Bailon-Ruiz, L. Alamo-Nole

785. Cadmium phytoremediation of in itro culture with micro-propagated clones f *Spermacoce assurgens*. **B.L. Vargas Perez**, . Rodriguez

786. Profile of metal bioaccumulation n selected invertebrates from the eastern and western shores of the Susquehanna River near Hummels Wharf Pennsylvania. **A. Pritzlaff**, C.P. Hallen, C. Venn

ction A

olorado Convention Center
alls C/D

ndergraduate Research Posters

eochemistry

ponsored by GEOC and SOCED

Di Fabio, *Organizer*

:00 - 2:00

787. Selective synthesis of ribose via the formose reaction under prebiotic conditions. **P.S. Donmoyer**, A.L. Marsh

788. Impact of methanotrophy on methane gas hydrate dissolution rates. **M. von der Lippe**, R.K. Larsen, L. Lapham

789. Formic acid uptake on montmorillonite clay: An FTIR study. **L.A. Hancock**, R.M. Weingold, C.D. Hatch

790. Exploring the mechanism for iron uptake by phytoplankton: A biomarker study. **M.J. Christie**, C.D. Hatch

791. Water adsorption on montmorillonite clays. **R. Meredith**, C.D. Hatch

792. Influence of a metal oxide surface on ligand exchange reactions between strong chelating agents. **J. Conrad**, N.E. Boland

793. Influence of pH on ligand exchange rate with phosphonate-containing chelating agents. **M.V. Harned**, T. Nelson, N.E. Boland

794. Sediment and water analysis of a glacially formed lake. **K.F. O'Connor**, Z. Balogh-Brunstad

Section A

Colorado Convention Center
Halls C/D

Undergraduate Research Posters

Green Chemistry & Sustainability

Cosponsored by SOCED

Financially supported by ACS Green Chemistry Institute; I&EC Green Chemistry

N. Di Fabio, *Organizer*

12:00 - 2:00

795. Southeastern Massachusetts student network for biodiesel research and education. **L. Sprague**, B. Ackley, K. Bukis, J. Hooper, I. Korslund, P. Kurriss, K. Roebuck, E.J. Brush

796. Series of meso-tetrasubstituted porphyrins synthesized using mechanochemistry. **Q. Su**, T.D. Hamilton

797. Entrainment sublimation for purification of mechanochemically-synthesized porphyrins. **V.S. Hoelscher**, T.D. Hamilton

798. Effects of halide salt hydrates on isomerization of glucose to fructose. **M. Swannell**, C. Yoo, X. Pan

799. Plasticizing sulfur with limonene: A functional material synthesized entirely from industrial waste. **M.P. Crockett**, A.M. Evans, J.M. Chalker

800. Malonic acid as a green alternative to formaldehyde in cell fixation. **D. Szlosek**, B. Byrnes, P.M. Doherty, D. Finocchietti, D. Currie

801. Oxidation of anthracene catalyzed by a recyclable vanadium(IV) oxide complex using hydrogen peroxide in an aqueous biphasic medium. **S.L. Moran**, C.A. Mebi, A. Bhuiyan

802. Vacuum distillation via solar irradiation. **L. Nurmomade**, D.J. Swartling

803. Further progress with Claisen condensations via solar irradiation. **S.M. Amin**, D.J. Swartling

804. Further progress with Fisher esterification via solar irradiation. **C.R. Buckner**, D.J. Swartling

805. Preparation of tetraphenylporphyrins via solar irradiation. **T. Pinto**, D.J. Swartling

806. Research to develop a more efficient reflux process for methanol capture in biodiesel synthesis by applying green chemistry principles. **P. Kurriss**, E.J. Brush

807. Development of green chemistry metrics to assess improvements to the efficiency in the synthesis of biodiesel from waste vegetable oil. **K. Roebuck**, E.J. Brush

808. Applying green chemistry principles in the synthesis of oxindole-3-acetic acid: The initial intermediate in the bromination of indole-3-acetic acid to 3-bromoxindole-3-acetic acid. **M. Steadman**, E.J. Brush

809. Synthesis of glucosamine-based single chain nonionic and cationic surfactants. **R. Gonzalez**, C. Coss, R. Palos Pacheco, J.E. Pemberton

810. Endo/exo thermal isomerization of a green Diels-Alder adduct. **S. MacColl-Garfinkel**, **M.S. Erickson**

811. Design of experiments approach to optimize the yield of 1-(4-vinylbenzyl) thymine. **R. Koelln**, **H. Schalck**, **C. Horgan**, **K. Vickey**, N. Chen, J. Pallozzi, K. McDonough, K. Dupuy, N.E. Lee, R.W. Gurney

812. Interactions of partially green double reduced gold nanoparticles with lead. **A. Cruz Torres**, R. Noriega Rivera, B. Mercado Toro, E. Medina, E.J. Ferrer Torres, C. Osorio Cantillo, J.I. Ramirez Domenech

813. Green synthesis of silver nanoparticles using extracts from *Leucaena leucocephala (Lam.) de Witt.* leaflets. **J. Delgado Irizarry**, **J. Rodriguez Ortiz**, R. Aleno, E. Medina, C. Osorio Cantillo, E. Ferrer Torres, J.I. Ramirez Domenech

814. Cross-linking and surface functionalization of polycarbonate films using thiol-ene click chemistry. I. Blythe, Y. Wang, D.J. Darensbourg

815. Chloride retention in biomass with the addition of lime and dolomite. **M.W. Smith**, G.P. Chea, T.A. Hoemberg, J.C. Barbour

816. Investigation of thiosemicarbazone ligands in "green" palladium catalyzed Suzuki cross-coupling reactions. **J.R. Hall**, B.J. Anderson

817. Discovery of a new copper bismuth oxide material for the conversion of sunlight into a solar fuel. L.R. Sharpe, **J.S. Compton**, C. Peterson, D. Dervishogullari

818. Mechanochemical synthesis of biologically relevant porphyrin targets. **D. Cordero**, T.D. Hamilton

819. Conversion of ethanol to gasoline over zeolite H-ZSM-5 catalyst. **A. Ali**, Z. Wang, S. Adhikari

820. Hydrolysis of fungal chitin utilizing ionic liquids as a solvent and catalyst. **J. Gayton**, C.D. Estefan, E.D. Anderson, M. Faralli, W. Reichert

821. Investigation of transesterification of canola oil using basic ion exchange resin. **R. Deal**, G.L. Milligan

822. Mechanochemical reactions for green chemical synthesis. **E. Hanna**, G.K. Kaufman

823. New metric to evaluate sustainability in the undergraduate organic laboratory course. **B. Saunders**, K. McMahon

824. Effects of cation structure on the acidity of Brønsted acid ionic liquids: A computational study. **C.D. Estefan**, J.N. Gayton, M. Faralli, E.D. Anderson, W.M. Reichert, E.A. Salter

825. Developing and applying new thin film combinatorial techniques for the discovery of new metal oxide semiconductors for the efficient photoelectrolysis of water. **V.A. Kong**, J.G. Rowley

826. Development of carbohydrate-based heterogeneous solid acid catalyst for biodiesel production. **M.L. Jordan**, B.S. Chilukuri, B. Jang

Section A

Colorado Convention Center
Halls C/D

Undergraduate Research Posters

Inorganic Chemistry

Cosponsored by INOR and SOCED

N. Di Fabio, *Organizer*

12:00 - 2:00

827. Aminebis(phenolate) complexes of palladium as catalysts for the Suzuki-Miyaura coupling reaction. **A.K. Bowser**, B. Wile

828. Alternative to detection: Europium(III)-tetracycline species association with biological molecules. **B.G. Vo**, G. Muller

829. Triflimide activation of azaferrocene-boranes for hydroboration of simple alkenes. **D.I. Szymanik**, T.J. Brunker

830. Liquid sorption studies of Co^{II}-4,4′-bipyridine 1D chains and 2D square grid MOFs. **K.C. Carlson**, C.L. Weeks

831. Synthesis and characterization of 1-D ladder crystals grown in methanol. **T.D. Petersen**, N.G. Weissenfluh, C.L. Weeks

832. Reaction of copper(II) chloride dihydrate with formamide. **A.G. Nicholson**, G.L. Seebach

833. Synthesis and investigation of novel thiosemicarbazone ligands and their metal complexes. **K.A. O'Rourke**, B.J. Anderson

834. Synthesis and characterization of a larger neutral macrocycle for transition and lanthanide(III) metal complexes. **A.J. Sprecher**, A.J. Jircitano

835. Synthesis, characterization, and electrochemical properties of tris(3-isopropylpyrazolyl)borate nickel complexes. **V. Doll**, N. Piro, W.S. Kassel, W.G. Dougherty

836. Synthesis, characterization, and electrochemical properties of tris(3-*tert*-butylpyrazolyl)borate copper complexes. **O. Beale**, N. Piro, W.S. Kassel, W.G. Dougherty

837. Synthesis, characterization, and ion-binding studies of $Ru(bpy)_3^{2+}$ macrocycle host complexes. **T. Carroll**, M. Harris

838. Complexation reactions of cerium (III) and cerium (IV) salts with amides. **T.L. Amburn**, G.L. Seebach

839. Synthesis and characterization of copper-thiosemicarbazone complexes: Interaction with DNA and anti-oxidant behavior. **K.R. Webb**, B.C. Helbert, F.A. Beckford

840. Curcuminoids as ligands in zinc and vanadium complexes: Synthesis and biophysical reactivity. **B. Helbert**, S. Smith, K.R. Webb, F.A. Beckford

841. New ethylene cross-bridged and side-bridged tetraazamacrocycles featuring acid and amide pendant arms and their transition metal complexes for oxidation catalysis. **M. Gorbet**, **M.B. Allen**, **A.D. Shircliff**, G. Yin, T.J. Hubin

842. 1,7-Dimethyl-1,4,7,10-tetraazacyclododecane complexes of Mn, Fe, Co, Ni, Cu, and Zn: Synthesis and characterization. **M.A. Ayala**, **A. Walker**, T.J. Hubin

843. Electrochemical stability of ruthenium-arene complexes. **M.T. Piedmonte**, S.M. Young, W.J. Vining

844. Ion selective redox chemistry of a rhenium (I) complex using cyclic voltammetry. **N. Rambhujun**, S.M. Young, W.J. Vining

845. Synthesis, NMR characterization, and x-ray crystal structure of quinoline-2-carboxaldehyde tert-butyl thiosemicarbazone: The [Pd(QCA-tBTSC)Cl] complex and MIC studies. **J. Chen**, J.D. Conner, N.P. Riggsbee, E.C. Lisic

846. Comparison of a series of 2-acetylpyridine-thiosemicarbazone Cu(II) and Pd(II) metal complexes. **B.C. McGill**, R.E. Scott, E.C. Lisic

847. Investigating bispyrrolidine based chiral C_2-symmetric tetradentate ligand. **J. Kaplan**, H. Reed, J.M. Keane

848. Quantitative determination of silver inhibition of halide accelerated aluminum corrosion. **K.D. Lopez**, **H. Gill**, S.G. Sobel

849. Metal – organic assemblies of meso – tetrasubstituted porphyrins. **M. Basden**, M. Knol, T.D. Hamilton

850. Iodination and MWI cyanation of *closo*-dodecaborate(2-) and *closo*-1,2-dicarbadodecaborate. **H.R. Midget**, M.A. Juhasz

851. Investigations of the halogenation, radiohalogenation, and functionalization of CB9 carborane clusters. **C.R. Vorauer**, M.A. Juhasz, D.S. Wilbur

852. Synthesis of new gold-isocyanide and acyclic diaminocarbene complexes for catalysis. **J. Coronado**, A.A. Ruch, V. Nesterov, L.M. Slaughter

853. Copper-catalyzed triazole synthesis in the presence of halides. **M.D. Womble**, R.M. Moorman, M.B. Collier, B.H. Frohock, J. Chalker

854. Mercury concentration in washed and unwashed leaves of differing plant species. D.W. Lehmpuhl, **K.A. Wager**, L.M. Bartolo

855. Designing novel electrodes of 3D porous V2O5:PANI films by colloidal particle lithography. **J.A. Zavala**, C.J. Chalker, A. Parija, H. An, J.L. Lutkenhaus, J.D. Batteas

856. Cobalt catalyzed cyclotrimerization of alkynes using a microwave reactor. **J. Legere**, E. Hawrelak

857. Modulating the electrochemical properties of iron-carbonyl clusters using thiolate ligands. **A.L. Haley**, L.S. McDaniel, L.N. Broadbent, C.H. Hinkle, S.T. Heckman, J.L. Randall, **S.L. Moran**, **C.A. Mebi**

858. Adsorption studies and immobilization of metal complexes on supports: Solid-state NMR and catalysis. **J. Benzie**, K.J. Cluff, J. Bluemel

859. Chemical pressure effects on $Ga_{2-x}Fe_xO_3$ magnetoelectric ceramic structure. **E. Velasquez**, C. Lefevre, F. Roulland, A. Demchenko, N. Viart

860. Synthesis and characterization of a novel hydrozone thiophene ligand. **A. Angeledes**, W.A. Weigand

861. Synthesis and magnetic characterization of lanthanide 12-metallacrown-4 complexes. **C. Daly**, C.M. Zaleski

862. Corrosion testing of anti-corrosion coatings by Scanning Electrochemical Microscopy (SECM). **C. Lee**, M.C. Calhoun, R.L. Calhoun

863. DNA binding studies of $[Rh(tacn)(dppz)(H_2O)]^{3+}$: A new metallointercalator with a modifiable coordination site. **I.M. Williams**, H.L. Hancock, S.C. Haefner

864. Speciation of europium(III)-tetracycline species. **A. Huy**, K. Deol, G. Muller

865. Toward the development of luminescent metal organic frameworks for use as sensors. **M. Peiffer**, K. Kneas, J.A. Rood

866. Interaction of DNA with [Cu(phen)(4-amino-pteridino(6,7-f)phenanthroline)]$(PF_6)_2$, a potent DNA cleavage agent. **A. Lopez**, G.H. Rawji

CHED **160.** Quantifying and recycling precious metals from printed circuit boards: An undergraduate laboratory. **S. Fields**, **C. Rector**, K.J. Sorauf

CHED **161.** Use of the three levels of representation to introduce the concept of buffers. **Z. Medina Torres**, E.L. Ortiz-Nieves, J. Padilla, J. Ortiz

CHED **162.** Periodic Table goes live. **E.J. Andrews**, T. Robinson, A.L. Curry, M.L. Curry

CHED **163.** Concrete solar cells? An investigation into an alternative form of alternative energy. **B. Ackley**, J. Bianchini, J.C. Warner

CHED **164.** Quantum dot sensitized solar cell for the undergraduate laboratory curriculum. **T.M. Ticich**, B.L. Oliva-Chatelain, A.R. Barron

CHED **165.** Integrated upper-division chemistry laboratory: synthesis and characterization of vandyl *bis*- acetylacetonoate complex. **S. Mahapatro**, C. Rector, G. Morgan, A.L. Stuckmeyer

CHED **166.** Separations of acetaminophen and caffeine by high temperature high-performance liquid chromatography. **A. Gizzi**, J.V. Arena

CHED **167.** ^{1}H NMR Analysis of the Methylation of Oleic Acid Catalyzed by Tin (II) Bromide in the Presence of a Cosolvent. **N. Singh**

CHED **168.** Determination of organic and inorganic priority pollutants in herbal teas and coffee. **R. Gray**, R. Richter

CHED **169.** Organic chemistry laboratory sequence alternating experiments with guided inquiry exercises. **S.C. Young**, K.L. Colabroy, M.R. Baar

CHED **170.** Using 3D printing to model steric interactions. **C. Diaz-Allen**, P.A. Sibbald

CHED **171.** Simple technique for students to assign hydrogen atom resonances in heterocyclic ligand metal complexes. **D.P. Rillema**, H. Nguyen

CHED **172.** Integration of green chemistry topics into the traditional organic chemistry experiments. **S.P. Lorimor**

CHED **173.** Boiling point, azeotrope: A simple discovery-based experiment for organic laboratory course. **M.A. Rubin**, M. Rubina

CHED **174.** How to PDB: a class exercise for professional Pharmacy Med Chem. **N.R. Natale**, H.D. Beall

CHED **175.** Novel instructional undergraduate organic chemistry laboratory experiment exploring substitution patterns of various allylic halides. **T.M. Trygstad**, **N.W. Dykes**, **A. Radakovic**, **P.T. Chazovachii**, E.W. Lake, M.M. Hite, J.C. Hicks

CHED **176.** Intermolecular forces: An organic laboratory experiment. S. Candiello, **R.B. Lettan II**

CHED **177.** Isolation and identification of natural products in dried turmeric in undergraduate research. **G.R. Khalsa**, A.J. Pohlod

CHED **178.** Multistep drug synthesis in the sophomore organic lab: Synthesizing *R*-rasagiline, a popular Parkinson's drug. **N. Aguilar**, **B.J. Garcia**, S. David

CHED **179.** Education through an inquiry based environment in the physical chemistry laboratory: The thermodynamic of an electrochemical cell. **C.M. Torres Diaz**, **D.D. Alequin**, R. Arce, A. Colom

CHED **180.** Synthesis and characterization of tricarbocyanine dyes for use in physical chemistry laboratory. **G.R. VandeZande**, A.L. Marsh

CHED **181.** Discovering pressure-volume-temperature phase relationships with 3D models. **D.R. Striplin**, F.A. Carroll, D.N. Blauch

CHED **182.** Portable X-ray fluorescence spectrometry in the undergraduate chemistry curriculum at MWSU. **S.L. Hiley**

CHED **183.** Preparation of samples for introducing undergraduate students to electron paramagnetic resonance. **A. Hanks**, B.E. Sturgeon

CHED **184.** Quantitative determination of kidney cancer biomarkers in urine by liquid chromatography tandem mass spectrometry. S. Gamagedara, **L.M. Nguyen**

CHED **185.** Research and practice of the mode of training research capacity through scientific innovation. **D. Lin**, W. Qin, B. Pu

CHED **186.** Discussion on characteristic specialty construction and cultivating college students' technological innovation ability. **D. Lin**, B. Pu, C. Li

CHED **187.** Development of a hybrid course in sustainable energy. **A. Kahl**

CHED **188.** Using theoretical chemistry to explain S_N2, E2, S_N1 versus E1 mechanism for undergraduate organic chemistry. **A.S. Dutton**, M.L. Dutton

MONDAY MORNING

Section A

Sheraton Denver Downtown Hotel

Gold

ACS Award for Achievement in Research for the Teaching and Learning of Chemistry: Symposium in Honor of Vickie M. Williamson

Cosponsored by WCC

Financially supported by Pearson Publishing

M. R. Abraham, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 CHED **189.** Origins. **M.R. Abraham**

8:55 CHED **190.** Visualization and the learning cycle: A great partnership. **J.I. Gelder**

9:15 CHED **191.** Six years in: Surviving and thriving at a SLAC. **K.R. McCann**

9:35 CHED **192.** Molecular visualizations through the lens of research and practice. **R.M. Kelly**

9:55 Intermission.

10:10 CHED **193.** Visualizations in the chemistry classroom: A visual learner's perspective. **M.J. Sanger**

10:30 CHED **194.** Developing and validating a measure of linked concepts for general chemistry. **S.E. Lewis**

10:50 CHED **195.** Innovation diffusion in a single case: Adoption and re-invention of visualization research findings to improve applied research, instruction, and teacher professional development in chemistry. **E.J. Yezierski**

Section B

Sheraton Denver Downtown Hotel

Century

Experiments for Physical Chemistry Laboratory

Spectroscopy & Thermodynamics

A. Grushow, S. S. Hunnicutt, R. M. Whitnell, *Organizers*

F. J. Creegan, *Presiding*

8:30 Introductory Remarks.

8:35 CHED **196.** Redesigning the hydrogen spectrum experiment for guided inquiry. **C. Salter**, C.M. Teague

8:55 CHED **197.** Using the spectrum of HCl as a model building exercise. **A. Grushow**

9:15 CHED **198.** Incorporation of single-molecule FRET measurements into an undergraduate Physical Biochemistry Laboratory course. **J. Knight**, D. Giardina, A.J. Bonham, M.K. Maron

9:35 Intermission.

9:45 CHED **199.** Guided-inquiry approach for relating the fluorescence spectrum of the pyrene excimer to its thermodynamic properties. **A.R. Noble**

10:05 CHED **200.** Constructing a binary phase diagram for aqueous salts. **R.R. Michelsen**

10:25 CHED **201.** POGIL physical chemistry lab experiment: the vapor pressure of liquid. **B.D. Gilbert**, M.A. Everest, D.E. Gardner

10:45 Intermission.

10:55 CHED **202.** Using food additives to enchance traditional bomb calorimetry experiments. **J.B. Dudek**

11:15 CHED **203.** Are the molecules that make a solution red big or small? A POGIL-PCL recasting of the cyanine dye experiment. **S.S. Hunnicutt**, R.M. Whitnell

11:35 CHED **204.** Guided inquiry solid-liquid phase diagram experiment. **S.S. Hunnicutt**, R.M. Whitnell, A. Grushow

11:55 Concluding Remarks.

Section C

Sheraton Denver Downtown Hotel

Spruce

Integrating Chemistry and Polymer Science Research into the Classroom

Cosponsored by PMSE and POLY

S. E. Morgan, *Organizer*

K. A. Cavicchi, *Organizer, Presiding*

K. Wingo, *Presiding*

8:30 CHED **205.** Developing polymer and chemistry research lessons for the high school classroom – NSF GK-12 at The University of Southern Mississippi. **K. Wingo**, S.S. Herron, S.E. Morgan

8:50 CHED **206.** Integration of polymer research into a lab-based polymer chemistry class at a small, primarily undergraduate institution. **B. McFarland**

9:10 CHED **207.** Aerospace composites and the scientific method: Supporting high school classroom curriculum with real-world applications. **A.S. Frazee**, B.F. Stringfellow, J.S. Wiggins

9:30 CHED **208.** Discovering chemicals through solid-phase microextraction gas chromatography/mass spectroscopy. **C. Rosu**, C. David, R. Cueto, L. Veillon, R. Laine, E. Reichmanis, P.S. Russo

9:50 CHED **209.** Introducing the effect of additives on hydrogel properties. **D.N. Amato**, K. Holmes, D.L. Patton

10:10 CHED **210.** Integrating polymer labs into the NGSS high school chemistry classroom. **M.T. Baker**

10:30 Intermission.

10:45 CHED **211.** Using polymer properties to illustrate and explain concepts in introductory chemistry. **D.E. Bergbreiter**

11:05 CHED **212.** Polymers in biomedicine and hydrophobic surfaces: Two RET experiences at the University of Akron. **D. Hess**, D. Moore, G. Cheng, N. Zacharia, K.A. Cavicchi

11:25 CHED **213.** Research Experience for Teachers program at The University of Akron. **K.A. Cavicchi**

11:45 CHED **214.** Transferring teacher research on wastewater wetlands into effective classroom activities. **A. Glimme**

12:05 CHED **215.** Withdrawn.

12:25 CHED **216.** Make it and break it: Employing a plant starch bio plastics experiment in the high school classroom for addressing engineering education standards. **J.E. Wissinger**, A. Johnson, C. Ahrenstorff

12:45 CHED **217.** Activities in polymer optical physics for STEM education enrichment in the K-12 environment. **A. Fogel**, J. Brownlow, S.E. Morgan

1:05 CHED **218.** Preparation and evaluation of antimicrobial films. **E.D. Matthews**

Section D

Sheraton Denver Downtown Hotel

Denver

Undergraduate Research Papers

Computational, Physical and Inorganic Chemistry

Cosponsored by SOCED

J. V. Ruppel, N. L. Snyder, *Organizers*

C. V. Gauthier, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 CHED **219.** Computational study of disubstituted ammonia borane derivatives for hydrogen storage. **T.E. West**, A.S. Dutton

8:45 CHED **220.** Determining the activation energy of a series of spectroscopic imines. **C. Yeager**, J.B. Dudek

8:55 CHED **221.** Why do Ala, Ala, Lys tripeptides preferentially rearrange to the Lys-Ala-Ala sequence in the gas phase? **E. Kowalczyk**, J. Poutsma

9:05 CHED **222.** Tandem substitution-cyclization-elimination reaction that can account for the mutagenicity of arylamines without the need of nitrenium ions. **S. Shrestha**, J. Bautista, A.G. Leach, A.S. Dutton

9:15 Intermission.

9:25 CHED **223.** Novel ligands for metal oxides colloid stabilization. **A.S. LaBeaud**, C. Mitchell, R. Komati, G.Z. Goloverda, V.L. Kolesnichenko

9:35 CHED **224.** Development of a new method for graphene oxide thin-film growth. **M. Berens**, B.J. Winters

9:45 CHED **225.** Iron-carbonyl clusters: Catalysts for hydrogen generation. **C.A. Mebi**

9:55 CHED **226.** Withdrawn.

10:05 Intermission.

10:15 CHED **227.** Shaped palladium nanoparticle synthesis on carbon substrates. **S.E. Sanders**, P. Duffy, P.E. Colavita, K.M. Metz

10:25 CHED **228.** Silicate nanoparticles from spray flame synthesis for lithium ion batteries. **E. Maccato**, J. Kovacevic, H. Wiggers, B. Mellis

10:35 CHED **229.** Morphological control of film structure in perovskite solar cells. **C. Jackson**, C. Tassone

10:45 CHED **230.** Laminar-flow reactor study of the pyrolysis of 4-vinylguaiacol. **J. Hoang**, E. Ledesma

10:55 Concluding Remarks.

Section E

Sheraton Denver Downtown Hotel

Columbine

Research at Community Colleges: Strategies for Enhancing Student Transfer & Success

Financially supported by 2YC3

D. M. Sarno, *Organizer*

P. D. Svoronos, *Organizer, Presiding*

8:30 Introductory Remarks.

8:35 CHED **231.** Using research as a tool to engage, retain and graduate STEM students at Queensborough Community College. N. Gadura, **P.D. Svoronos**

8:55 CHED **232.** Goal, role, and soul of undergraduate research development at the Community College of Denver. **M. Haefele**, **H. Loshbaugh**

9:15 CHED **233.** Black bear research: A case study in undergraduate research at a community college. **J.J. Van Niel**

9:35 CHED **234.** Undergraduate research at Queensborough Community College: The first step for a successful transfer and eventual post-undergraduate career in STEM careers. **P.D. Svoronos**

10:15 Intermission.

9:55 CHED **235.** Transporting an established undergraduate research program to a community college. **D.J. Schauer**

10:25 CHED **236.** Strategies for funding undergraduate research at the community college. **R.H. Jarman**

10:45 CHED **237.** Research-based and interdisciplinary curriculum design for general chemistry and beyond. **K.S. Owens**, A.J. Murkowski, H. Price, A.M. Johansen

11:05 Intermission.

11:15 CHED **238.** Promoting undergraduate research at community colleges to increase STEM competency and transferability to 4 yr institutions within CUNY. **N.H. Phillip**, **T. Brennan**, P. Meleties, J. Rachlin

11:35 CHED **239.** The STEPS Program – a pathway from Community College to Bachelor's degree and beyond. **R.D. Walker**, T. Williams

11:55 CHED **240.** The Community College Undergraduate Research Initiative: A national collaborative. **P. Powers**

12:15 Discussion.

‡ *Cooperative Cosponsorship*