



American Chemical Society  
Susquehanna Valley Section

## APRIL 2024 NEWSLETTER

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### LOCAL SECTION ELECTIONS FOR 2024 OFFICERS:

Our Local Section needs nominations for the following positions:

- **Chair-elect** (one year term as Chair-Elect, one year as Chair, and one year as Past Chair)
- **Secretary** (three-year term)

and, although we have nominees for the following positions, additional nominations may be submitted for these as well:

- **Treasurer, Councilor, and Alternate Councilor** (all three-year terms)

If interested, please contact the [Section Councilor](#).

Expect a ballot to be emailed to you in the coming weeks. Our elections are past-due and must be completed soon. More information on these positions can be found in this newsletter (see below).

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### MONTHLY DINNER MEETING:

The four hundred and seventy second meeting of the Susquehanna Valley Section of the American Chemical Society will be held on Wednesday, April 10<sup>th</sup>, 2024 on the campus of the University of Scranton. The meeting will begin at 7:00 PM in the Loyola Science Center (LSC), room 439 and will be preceded by a dinner at 5:30 PM at Trax Bar and Kitchen. The speaker will be R. Joseph Lastowski of University of Illinois, Urbana-Champaign.

### *“Challenging Long-Held Views in Chemistry: Surprising New Discoveries about Chemical Bonds”*

R. Joseph Lastowski, Graduate Researcher  
University of Illinois, Urbana-Champaign  
Champaign, IL

This seminar will discuss discoveries that challenge two long-held views about chemical bonds: (1) that hydrogen atoms almost always form one bond, and when they are forced to form two

bonds one of them must be relatively weak, and (2) that quadruple bonds between two metal atoms have magnetic properties very different from multiple bonds between two carbon atoms. These discoveries came through the study of transition metal complexes bearing the anion  $[-\text{CH}_2\text{-N}(\text{CH}_3)_2\text{-BH}_3]^-$  (boronatodimethylaminomethyl, or “BDAM”), which can bind to a metal by means of a metal-carbon (M–C) bond at one end of the anion, and a metal-hydrogen-boron (M–H–B) interaction at the other.

Many compounds containing three-center two-electron M–H–B interactions are known, and these interactions have generally been assumed to be weak because the M–H bond can often be easily broken. In this talk we describe new chromium(III) and cobalt(III) compounds of stoichiometry  $\text{M}(\text{BDAM})_3$  (which have three M–C bonds and three M–H–B interactions). We show through analyses of their UV-vis spectra that the three-center two-electron metal-borohydride bonds cause unexpectedly large ligand field splittings, thus placing them high on the spectrochemical series (near ammonia and alkyl groups). This result shows that hydrogen atoms actually can form two strong bonds, not just one.

In the second half of the seminar we discuss the magnetic anisotropy of the quadruple bond in a new compound, the molybdenum(II) dimer  $\text{Mo}_2(\text{BDAM})_4$ . When the electrons in multiple bonds are placed in an external magnetic field, they generate a secondary magnetic field that is anisotropic. For over 50 years it has been thought that the magnetic anisotropies of metal-metal quadruple bonds are ten to forty times larger than that of a carbon–carbon triple bond. But this conclusion is based on an assumption (almost always unstated or unappreciated): that the ligands attached to the metals do not contribute to the anisotropy. We used theoretical calculations to show that this assumption is often incorrect, and that ignoring ligand effects has led many previous workers to significantly overestimate the anisotropy of metal–metal quadruple bonds. We show that their magnetic anisotropies are in fact only slightly larger than the anisotropies seen for carbon–carbon triple bonds.

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## **BIOGRAPHY:**

R. Joseph Lastowski, born and raised in the suburbs of Philadelphia, PA. He obtained a BS in Chemistry from the University of Scranton in 2019 while performing research under Prof. David E. Marx on the photo-initiated synthesis of transition metal buckminsterfullerene complexes. As an NSF REU researcher, he studied the control of active-swimmer bacteria using nematic liquid crystals at Kent State University under Prof. Oleg D. Lavrentovich. Currently he is obtaining a PhD in chemistry at the University of Illinois, Urbana-Champaign researching the fundamental properties of metal complexes bearing unsymmetrical alkyl chelates and their applications for chemical vapor deposition under Prof. Gregory S. Girolami.

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**DINNER:**

The meeting will be preceded by dinner at 5:30 PM at [Trax Bar and Kitchen](#) (700 Lackawanna Ave. Scranton, PA 18503 inside the [Radisson Lackawanna Station Hotel Scranton](#)). Dinner will be ordered from the menu. Sandwiches and salads average \$15/person and entrees average \$25-30/person. If you are interested in attending the dinner, please RSVP to Nicholas Sizemore by email ([nicholas.sizemore@scranton.edu](mailto:nicholas.sizemore@scranton.edu)) or phone (570) 941-5971 by Tuesday, April 9, 2024.

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**DIRECTIONS TO THE UNIVERSITY OF SCRANTON:**

From I-81 Exit 185 (President Biden Expressway) to the Loyola Science Center (#45) (see map below || GPS Address: 252 Monroe Ave. Scranton, PA 18510). Follow signs to campus (on right). Before the first traffic signal, turn sharply right onto Madison Avenue. Make the first right onto Linden St. There is street parking on Linden St. and Monroe Ave, as well as at the Radisson (left off of the President Biden Expressway) for those attending dinner. It is suggested to enter through the atrium entrance on Monroe Ave (#43). To the right of the atrium is a glass staircase and elevator. The lecture room (LSC 439) is on the 4th floor at the top of the staircase and to the left as you exit the elevator. See their [website](#) for more details.



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## LOCAL SECTION NEWS:

### ANNUAL AWARDS BANQUET:

1 May 2024 - Annual Awards Banquet at the [Pine Barn Inn](#) in Danville: With the presentation of various local section awards, the Annual Awards Banquet recognizes both aspiring and accomplished chemistry professionals in the Local Section. The event will also feature an interactive lecture / tasting of chocolate by Jaime Jurado.

### OPEN POSITIONS IN THE LOCAL SECTION:

Do you want to use your talents to help other chemists in the Susquehanna Valley section? Listed below are examples of positions that need to be filled by willing individuals along with websites that give organizing ideas:

- SVS Chair-Elect  
*This three-year position is the usual office taken on by local chemists who want to begin to become more involved in the local section.*
- [Chemistry Olympiad](#) Chair  
*Administer Local Chemistry Olympiad Competitions.*
- WCC ([Woman Chemists Committee](#)) Chair  
*Help attract, retain, develop, promote, and advocate for women to positively impact diversity, equity and inclusion in the Society and the profession.*
- CMA ([Committee on Minority Affairs](#)) Chair  
*Help increase the number & participation of racially & ethnically underrepresented scientists in the Society and its governance.*
- Project SEED ([Summer Experiences for the Economically Disadvantaged](#)) Coordinator  
*Coordinators are responsible for establishing programs, identifying mentors, recruiting students, fundraising, and organizing activities such as field trips.*
- CH&S ([Chemical Health and Safety](#)) Committee Chair  
*Help provide authoritative technical resources and mentorship in chemical health and safety.*
- SCC ([Senior Chemists Committee](#)) Chair  
*Help improve communication among senior chemists, increase the number of senior chemists' groups, and the level of their engagement within local sections..*
- CCEW ([Chemists Celebrate Earth Week](#)) Coordinator  
*Help promote the positive role that chemistry plays in the protecting our planet.*

If you are interested in learning more about these volunteer activities, please contact the section Councilor (Donald Mencer, [donald.mencer@wilkes.edu](mailto:donald.mencer@wilkes.edu)).

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LOCAL STEM COMPETITIONS:



A list of all STEM competitions for high school students is posted on our [website](#). If you have any questions about the contests or have suggestions for others, please contact either the person indicated on the site or the section [Councilor](#).

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# MARM 2024

## *Celebrating Discovery*

### **Middle Atlantic Regional Meeting**

**June 5 - 8 | University Park, PA**

The Central Pennsylvania Section of the American Chemical Society is proud to present the **2024 Middle Atlantic Regional Meeting** on **June 5-8** and welcomes you to beautiful Happy Valley, home of the Penn State Nittany Lions. In recognition of the quarter-millennial anniversary of one of the most important discoveries of our time, the meeting's theme is "**Celebrating Discovery**." Through this theme, we will honor and celebrate the groundbreaking work of Joseph Priestley on the discovery of oxygen in 1774. We hope that MARM 2024 inspires you to make brand new discoveries and foster professional connections with scientists from all over the Mid-Atlantic!

Register and join chemistry professionals, students, and educators to discover and share research, participate in engaging discussions, network during the poster sessions, and enhance your career in **MARM 2024**.

To register, you will need an ACS ID. You can [create a free ACS ID](#) if you don't already have one.

**Register by Monday, May 6, to take advantage of the early registration rates!**

[Register Now](#)

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## NATIONAL ACS NEWS:

### ACS LEGISLATIVE ACTION NETWORK:

Legislation that may impact the chemical enterprise comes before Congress on a regular basis, and the ACS is committed to keeping its members informed and encouraging them to weigh in on high-priority issues. To see the position of the ACS on many legislative issues visit the ACS LAN website: <https://www.acs.org/content/acs/en/policy.html> To find out how to become more active in ACS advocacy activities, see the [advocacy website](#).

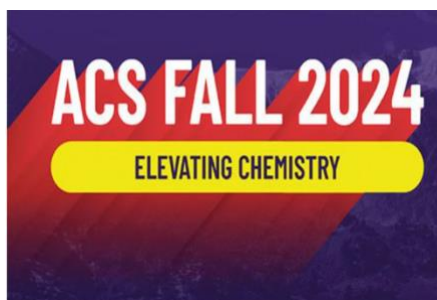
To join ACS' grassroots legislative advocacy network, ACT4CHEMISTRY, which will allow you to stay up to date on policy issues and contact legislators on behalf of chemistry and chemists, go to their website, follow the [Act4Chemistry X](#) account, or email [advocacy@acs.org](mailto:advocacy@acs.org).

*Act4Chemistry Advocacy Issues. To take action go to the website*  
<https://www.acs.org/policy/memberadvocacy.html>

### JOIN THE ACS:

If you know of anyone who would benefit from being a member of the American Chemical Society, please direct them to the membership website: <https://www.acs.org/membership.html>

### NATIONAL MEETINGS:



#### *Fall 2024 ACS National Meeting*

The Fall 2024 national meeting, “Elevating Chemistry” will be a hybrid event.

The meeting will be held August 18-22, and the in-person event will take place in Denver, CO.

See the [website](#) for more information.

### SAVE THE DATE:

The 28<sup>th</sup> Biennial Conference on Chemical Education will be held at the University of Kentucky in Lexington on July 28 – August 1, 2024. See the [website](#) for more details.



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Susquehanna Valley Section Web Page: [svs-acs.org](https://svs-acs.org). Please send any comments about the monthly newsletter to your Local Section Councilor [Donald Mencer](#).

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