

BULLETIN

"An organization of people interested in the Natural Sciences"



December 2024, January 2025; Vol. 78, #10

President's Message

2024 Scientific Paper Session

Our 50th annual Fall Scientific Paper Session on November 16th was a great success. It ran flawlessly. SUNY Brockport provided an exemplary cross-disciplinary team led by Markus Hoffmann (Chemistry) to organize the event. The team included Jacques Rinchar (Environmental Science), Jennifer Ramsay (Anthropology), Eric Monier (Physics), Michel Pelletier (Biology), Jim Zollweg (Earth Sciences), Carly Reed (Chemistry) and Mark Heitz (Chemistry).

The leading purpose of the Rochester Academy of Science is and always has been to promote scientific study and research. We have many citizen science opportunities to serve our members. We provide numerous public outreach programs. However, I believe that our greatest contribution to the advancement of science is in nurturing young scientists and encouraging them to continue their careers in the sciences. The Annual Fall Scientific Paper Session is our flagship program in this area. The fact that we are now planning the 51st to be next year demonstrates that the academic community finds great value in it for their students. Many students have made their very first poster presentation or oral report on their research at this event.

We had over 250 people attend, to see the 84 posters and hear the 24 oral presentations. Attendees came from 20 Upstate New York schools – Buffalo State University, Canisius University, Cornell University, D'Youville University, Finger Lakes Community College, Hobart & William Smith Colleges, Houghton University,

Ithaca College, Keuka College, Nazareth University, Niagara University, Rochester Institute of Technology, St. John Fisher University, SUNY Brockport, SUNY Buffalo, SUNY Environmental Science and Forestry, SUNY Fredonia, SUNY Geneseo, SUNY Oswego, and University of Rochester. Four of these institutions did not participate last year, so we are still seeing growth.

It took the efforts of many Academy members to make this all work. We had to process the hundreds of attendees in under an hour at our registration tables. Thank you to Jeff Gutterman, Helen Haller, Douglas Kostyk, and John Handley for making this happen. Robert Crumrine and Ted Lechman sat in on talks and visited posters, talking with students and taking photographs. You will see the results in articles on student research in the next few Bulletins showcasing some of the research projects presented. Tim Tatakis recorded all the lunch payments and abstract fees—no small task. Our outreach display tables were staffed by Tony Golumbeck, David Bishop, and John Handley for Astronomy and Fossil Sections. Mariana Rhoades, John Rhoades, and Jutta Dudley helped with cleanup along with others. Alex Smith and other RAS academic members assisted students setting up presentations. SUNY Brockport students moderated the seven speaker sessions. They included Sara Reeners, Erik Dillon, Allison Blum, Madison Palmatier, Kachiri Guzman, Brad Britt, and Tyler Haarman.

In the early afternoon after the second poster session, we reconvened

in the 101 Auditorium where Jeff Gutterman welcomed all and introduced our Annual Larry King Memorial Lecture keynote speaker Dr. John Tarduno. Dr. Tarduno leads the Paleomagnetic Research Group and laboratory at the University of Rochester. He spoke on, "**Did a magnetic field collapse trigger the emergence of animals?**" This talk was based on the team's recent paper in *Communications Earth & Environment* 5.1 (2024): 207 titled "Near-collapse of the geomagnetic field may have contributed to atmospheric oxygenation and animal radiation in the Ediacaran Period." It was gratifying to see the auditorium filled.

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Renew Your Membership

Unless you are a Life Member, note that your membership will expire on December 31, 2024. Please renew your membership at your earliest convenience. Use the enclosed membership form or this link to renew. <https://rasny.org/how-to-join>

* * *

Student Grants program

We have announced the 2024-2025 Student Grants program run by the RAS to all the local area colleges. This past January, the RAS Grants Committee awarded a total of \$4762 for nine research projects. The maximum amount of each grant is \$700 for research, (*continued p. 3*)

Events for December 2024, January 2025

NOT MEETING IN DECEMBER:

Mineral
RAS Board

NOT MEETING IN JANUARY:

Fossil

DECEMBER, 2024 EVENTS:

Dec 3 Tues: Fossil Meeting

7:00 p.m. Note earlier time. Meeting at Pittsford Community Center, room 019, 35 Lincoln Avenue Pittsford, NY 14534. The meeting is our annual Show-and-Tell and Pizza party. The section will provide Pizza and drinks. Members are asked to bring some of their choice fossil finds from the past couple of years. For meeting details see the FossilLetter or contact Michael Grenier at paleo@frontier.com. It will not be broadcast on Zoom.

Dec 4 Wed: Astronomy Members Forum

7:30 p.m. – 9:00 p.m. Speaker David Bishop "A deep dive into the Big Dipper". Contact: Anthony Golumbeck at semp@use.startmail.com.

Dec 6 Fri: Astronomy Members Meeting

6:30 p.m. – 9:45 p.m. Annual holiday extravaganza at the Planetarium, 697 East Avenue, Rochester. Bring an appetizer, dessert or dish to pass. Contact: Anthony Golumbeck at semp@use.startmail.com.

Dec. 11 Wed: Herbarium

12:00 p.m. - 3:00 p.m. The Life Sciences section will hold a workshop at the RAS

Herbarium, located in the basement of the Rochester Museum and Science Center (RMSC). We will be continuing to organize plant specimens in preparation for digitizing the collection. If you plan to attend, please send an RSVP to rasherbarium@gmail.com. At RMSC go to the front desk to meet other participants. For more information, contact herbarium curators, Tim Tatakis and Steven Daniel, by emailing rasherbarium@gmail.com.

Dec 11 Wed: Astronomy Board Meeting

7:00 p.m. – 9:00 p.m. Farash Center. ASRAS Members are welcome to attend. Contact: Anthony Golumbeck at semp@use.startmail.com.

Dec 15 Sun: Astronomy Open House

12:00 p.m. – 3:00 p.m. Farash Center, 8355 County Road 14, Ionia. Contact: Anthony Golumbeck at semp@use.startmail.com.

JANUARY, 2025 EVENTS:

Jan 3 Fri: Astronomy Members Meeting

7:30 p.m. – 9:30 p.m. RIT Image Science Building. Contact: Anthony Golumbeck at semp@use.startmail.com.

Jan 8 Wed: Astronomy Board Meeting

7:00 p.m. – 9:00 p.m. ASRAS Members are welcome to attend. Contact: Anthony Golumbeck at semp@use.startmail.com.

Jan. 8 Wed: Herbarium

12:00 p.m. - 3:00 p.m. The Life Sciences section will hold a workshop at the RAS Herbarium, located in the basement of the Rochester Museum and Science Center (RMSC). We will be continuing to organize plant specimens in preparation for digitizing the collection. If you plan to attend, please send an RSVP to rasherbarium@gmail.com. At RMSC go to the front desk to meet other participants. For more information, contact herbarium curators, Tim Tatakis and Steven Daniel, by emailing rasherbarium@gmail.com.

Jan 15 Wed: RAS Board Meeting

7:00 p.m. -9:00 p.m. On Zoom only. For details, contact Michael Grenier at mgrenier@frontiernet.net.

Jan. 28 Tues: Mineral Members Meeting

7:30 p.m. – 9:00 p.m. Zoom only. Steve Chamberlain will speak about tourmalines. Members will be sent details in January. Contact: Jutta Dudley, juttasd@aol.com.

STRASENBURGH OBSERVATORY:

ASRAS will operate the telescope at the Strasenburgh Planetarium on mostly clear Saturday nights, dusk until 10:30. For more information, contact: Jim Seidewand at (585) 703-9876.

(from p. 1) plus a \$50 unrestricted grant to the author of our top submission.

Our Student Grants Endowment Fund provided the money for seven of these grants. The remainder were funded with member donations. I invite you to join me in contributing, however small, to the Rochester Academy of Science Student Grants program. No part of our annual dues is used to make these awards. We can only make an additional award or two with the donations made by members by December 15.

In the February, March, and April editions of the RAS Bulletin, we featured the research proposals of eight of the nine grant winners. I hope you enjoyed reading about the diverse projects underway. We also published on the fascinating final reports from three previous year winners.

It was gratifying to see five of our 2024 grant winners at the Paper

Session presenting updates on the progress in their researches.

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Volunteer Needed

Help is needed in preparation of our next issue of the *Proceedings of the Rochester Academy of Science*.

Classified Advertisement

↓ Volunteer Opportunity ↓

RAS Proceedings Editor

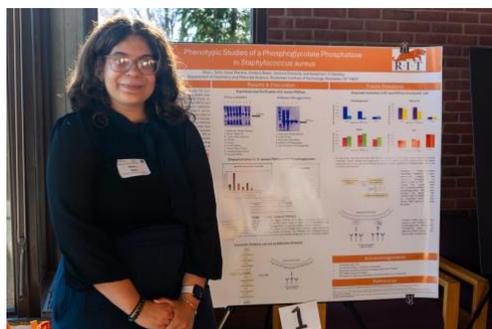
Rochester Academy of Science, Rochester, NY.

Editor needed who is adept at MSWord formatting. The *Proceedings of the Rochester Academy of Science* is the science journal of the Academy. We publish periodically with papers on the natural sciences of western New York and adjacent areas including the abstracts of posters and talks presented at our annual Scientific Papers Session. We desire an individual to join our Publications Committee who can put all submissions into a standard format. Topic knowledge is not required. Send note of interest to mgrenier@frontiernet.net.



Michael Grenier, President RAS

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Phenotypic Studies of a phosphoglycolate phosphatase in *Staphylococcus aureus*.

by Mya Soto (pictured), Israel Moreno, Kimbria Blake, Jasmine Edwards and Suzanne F. O'Handley, RIT.
Photo: R. Crumrine, Fall 2024 RAS Paper Session.

Mya was one of our nine 2024 Student Grant Winners.

Abstract:

Staphylococcus aureus is an opportunistic pathogen that is responsible for over 20,000 annual deaths in the United States, which accounts for more deaths than those from AIDS, Tuberculosis, and viral Hepatitis combined (Wojcik-Bojek, et. al, 2022). With the continual rise of multidrug resistant strains such as MRSA and VRSA, it is vital to investigate virulence factors as potential novel antibiotic targets. We are studying a phosphoglycolate phosphatase (PGPase) from *S. aureus* that has been established as a virulence factor (Begun, 2005). Phosphoglycolate is an inhibitor of the glycolytic enzyme triose phosphate isomerase (TPI) (Johnson, 1970). TPI is not only involved in glycolysis, but also has a moonlighting function as an adhesion protein (Hemmadi, 2020), thus inhibition by phosphoglycolate may interfere with *S. aureus*'s ability to attach to host cells effectively; Our enzyme may work as a virulence factor by degrading phosphoglycolate, enabling TPI to adhere more strongly. We have cloned, overexpressed, purified and enzymatically characterized the PGPases from *S. aureus*. Currently, our focus is on understanding how this PGPase is a virulence factor and we plan to do that by comparing an *S. aureus* knockout mutant to the wildtype strain of *S. aureus*.

2025 Rochester Academy of Science, Inc.

Membership Form

Mail to:

R.A.S.
Att'n: Treasurer
P O Box 92642
Rochester, NY 14692-0642

[] New
[] Renewal

Name _____ E-mail _____

Street _____ Phone _____

City _____ State _____ ZIP _____ - _____

For your convenience, please pay your dues to the R.A.S. and its sections with a single check. **Make check payable to: Rochester Academy of Science** or pay at <https://rasny.org/how-to-join> (bottom of page) with PayPal, Credit or Debit Card.

CIRCLE the amount you are paying for an Academy category (shaded column) and for the Section(s) in which you wish membership.

Membership Categories <i>R.A.S. dues are a prerequisite for section membership</i>	Rochester Academy of Science	Anthropology Section	Astronomy Section	Life Sciences Section	Fossil Section	Mineral Section	Total
Member (Individual over age 18)	\$10.00	\$2.00	\$25.00	\$2.00	\$10.00	\$5.00	
Family (Including students to age 18)	\$15.00	\$3.00	\$30.00	\$3.00	\$10.00	\$6.00	
Student (Through full-time undergrad.)	\$5.00	\$1.00	\$5.00	\$1.00	\$5.00	\$2.00	
Supporting (Individual or family)	\$20.00	*****	\$40.00	\$10.00	\$20.00	\$10.00	
Patron (Individual or family)	\$30.00	*****	\$50.00	\$20.00	\$30.00	\$20.00	
Life (Individual only)	\$200.00	*****	\$300.00	\$40.00	*****	*****	
Gift (Thank you!) Fill in amount <input type="checkbox"/>							
<i>If you are away part of the year, please indicate the months:</i>							

RAS Member Images



M31. Pat Cosgrove. November, 2024.



Pacman Nebula NGC 281. Rick Albrecht, November, 2024.

Rochester Research in Review.

(These are Hot Links which when clicked lead to the press release on the Science Daily website.)

[RSV vaccines effective, but more people need to get them. University of Rochester; October 27, 2024.](#)

[Researchers identify 'sweet spot' for safe surgery after heart attack. University of Rochester; October 30, 2024.](#)

[New discovery enables gene therapy for muscular dystrophies, other disorders. University of Rochester; November 14, 2024.](#)

[Astronomers discover first pairs of white dwarf and main sequence stars in clusters, shining new light on stellar evolution. Rochester Institute of Technology contributor; November 19, 2024.](#)

[Evolutionary paths vastly differ for birds, bats. Cornell University; November 1, 2024.](#)

[Colorado River basins could face tipping point, drought study warns. Cornell University; November 14, 2024.](#)

[Scientists compile library for evaluating exoplanet water. Cornell University; November 14, 2024.](#)

[Consistent bedtime linked with better child emotion and behavior regulation. University at Buffalo collaboration; November 11, 2024](#)

[Political polarization poses health risks, new analysis concludes. Syracuse University collaboration. October 25, 2024.](#)

[Here's something Americans agree on: Sports build character. Ithaca College collaboration, November 21, 2024.](#)



Saturn. Kevin Lyons, November 6, 2024.



Northern Shovelers (*Spatula clypeata*) at Montezuma. R. Crumrine, November 15, 2024.

ABOUT THE ACADEMY

The Rochester Academy of Science™, Inc. is an organization that has been promoting interest in the natural sciences since 1881, with special focus on the western New York state region. Membership is open to anyone with an interest in science. Dues are minimal for the Academy and are listed in the [membership application online](#). Each Section also sets dues to cover Section-related publications and mailings. We are recognized as a 501(c)3 organization.

For information, contact President Michael Grenier at (585) 671-8738 or by email paleo@frontier.com.

The Academy Internet website is <http://www.rasny.org> or see us on Facebook at <https://www.facebook.com/Rochester-Academy-of-Science-792700687474549>.

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