Mechanism Of The Month

Ozonolysis

Ozonolysis is an organic reaction where the unsaturated bonds are cleaved with ozone (O₃). Multiple carbon-carbon bond are replaced by carbonyl(C=O) groups, such as aldehydes, ketones, and carboxylic acids. The reaction is used with alkenes, but alkynes and azo compounds are also susceptible to cleavage. The outcome of the reaction depends on the type of multiple bond being oxidized and the work-up conditions.

1. The accepted mechanism proposed by Rudolf Criegee in 1953 states that the alkene and ozone form an intermediate molozonide in a 1,3 dipolar cycloaddition. The molozonide reverts to its corresponding carbonyl oxide (also called the Criegee intermediate or Criegee zwitterion) and aldehyde or ketone (3) in a retro-1,3 dipolar cycloaddition. The oxide and aldehyde or ketone react again in a 1,3 dipolar cycloaddition, producing a relatively stable ozonide intermediate, known as a trioxolane (4). ²

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Ozonolysis

Chart 1

\[
\begin{align*}
\text{More Important} & \quad \text{Less Important} \\
\text{More bonds, less charge separation} & \quad \text{Fewer bonds, greater charge separation}
\end{align*}
\]

Chart 2

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SUMMER FAMILY PICNIC

Date: Saturday, July 27th
Time: 12:30 - 4:30 pm
Location: Chadwick Lake Park
1702 Route 300, Newburgh
Playground Pavilion
Cost: $5 per person, children 8 and under are free (non-refundable)

Food and non-alcoholic beverages will be provided
Games, raffle with prizes

Rain or shine
No parking fee, just mention you are attending the “Mid-Hudson ACS Summer Picnic” at the gate

Alcoholic beverages are not permitted
No pets allowed

Deadline to Register Has Been Extended to: Friday, July 19th
Space is Limited so register early to guarantee your space

Click to Register  Liability Waiver  Photo release

Please Sign the Waiver and Photo Release (links above)
Please Print and Bring to the Event or Email to Patti at patti.cusatis@basf.com

Continue On Page 3...
SAVE THE DATE

GROUP EVENT
WEST POINT FOOTBALL GAME

September 21, 2024
12 noon
Rice Owls vs. West Point Black Knights
Michie Stadium

After the football game, you are welcome to join us at the tailgate hosted by the United States Military Academy’s Department of Chemistry of Life Science. Tailgate location to be announced.
The Mid-Hudson Section participated in the ACS Poem Contest this year. The following are the top winners from our section. The first place winner has been submitted to the National Poem Contest for a chance to win further prizes. All of the students were from Red Hook Central High School under the instruction of Jason Pavlich.

First Place Grade 9-12: Anjelica M.  
Second Place: Grade 9-12: Brandon J.  
Third Place Grade 9-12: Sarah G.

GREAT JOB AND A CHARGED UP CONGRATULATIONS TO OUR WINNERS!!!
Cindy Binnie received her B.S. degree in Chemistry from Binghamton University and her Masters of Art in Teaching from Bard College. She has been teaching Chemistry, including AP, Regents and a Science Research course at Arlington High School since 2010.

Ms. Binnie continues to expand her knowledge through professional development courses offered through organizations like the AACT, and Beyond Benign, and is also an emeritus member of the NY State Master Teacher Program. In that program she was the leader of the chemistry professional learning team (PLT). She coordinated the work of all of the chemistry teachers in our region, and even organized outings for us, such as to learn about the chemistry of beer at the Culinary Institute of America’s new brewery.

This year Cindy also became the chair of the science department at Arlington High School. In that role she is able to further showcase her leadership skills, and has been working to nurture our students’ love of science by developing programs such as a field trip to Western New York to see the totality of the April solar eclipse and learn about the science behind it.

In addition to her work in the classroom and with other chemistry teachers, Cindy is also the advisor of the school’s Environmental Club. This club has spearheaded campaigns to improve our school district by leading efforts to do things such as plant trees and compost lunch waste. She also involves the club members in a multi-day environmental conference at the Ashokan Center the last few years, applying for grants to make this happen.

Her work and dedication to the field of teaching chemistry makes her a worthy recipient of this prestigious award.

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On Sunday, April 14, 2024, five local high school students took the U.S. National Chemistry Olympiad at Vassar College. The exam consisted of a multiple choice test, a written problem solving examination and a hands-on lab practical.

Congratulations to the students and to the local teachers that facilitated participation.

Students from left to right: Max Darling (Red Hook High School); Liam Sakamoto-Hata (Red Hook High School); Charley Li (Millbrook School); Charlotte Wang (John Jay High School, Hopewell Jct); Nash Pillai (John Jay High School, Hopewell Jct).
2024 College Recognition Award

The 2024 College Recognition Awards were presented during the Undergraduate Research Symposium held on Friday, April 19th at SUNY New Paltz. The purpose of the award is to recognize achievement in the field of chemistry and to encourage further study in chemistry. One student from each of the colleges in the Mid-Hudson Section was presented with a monetary award. The names of the worthy recipients and their research advisors are listed below.

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<thead>
<tr>
<th>Educational Institution</th>
<th>Student</th>
<th>Student’s Hometown</th>
<th>Advisor(s)</th>
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<tbody>
<tr>
<td>Mount Saint Mary College</td>
<td>Nicole Kalinowski</td>
<td>Hopewell Junction, NY</td>
<td>Dr. Jodie Fahey</td>
</tr>
<tr>
<td>United States Military Academy</td>
<td>Brian C. Lunn</td>
<td>Surprise, AZ</td>
<td>LTC Stephen Hummel</td>
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<tr>
<td>Bard College</td>
<td>Sasha Fraser</td>
<td>Woodstock, NY</td>
<td>Dr. Matthew Greenberg</td>
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<tr>
<td>Vassar College</td>
<td>Clara Wiesler</td>
<td>Guilford, CT</td>
<td>Dr. Evan Howard</td>
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<td>SUNY Orange</td>
<td>Vaniece Pun</td>
<td>Goshen, NY</td>
<td>Dr. Dustin McCall</td>
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<tr>
<td>Marist College</td>
<td>Rachel Dean</td>
<td>Campbells Bay, New Zealand</td>
<td>Dr. John Galbraith</td>
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<tr>
<td>SUNY New Paltz</td>
<td>Ryan Grodin</td>
<td>Wurtsboro, NY</td>
<td>Dr. Frantz Folmer-Andersen</td>
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<tr>
<td>SUNY Dutchess</td>
<td>Steven Alperin</td>
<td>Somers, NY</td>
<td>Dr. Jeff D. Cavalieri</td>
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<tr>
<td>SUNY Ulster</td>
<td>Pla Kinsella</td>
<td>Kingston, NY</td>
<td>Dr. Jennifer Guiler</td>
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Photo Credit: Lynn Robinson
2024 Duchess County Science Fair

65th Annual Dutchess County Regional Science Fair
April 6, 2024

A total of 80 students participated in the 65th Annual Dutchess County Regional Science Fair on April 6th. The event was held in person at Dutchess Community College. Special thanks to Nicoline Kiwiet as the Coordinator, and Lynn Robinson and Ashutosh Sharma as the Judges of the Chemistry projects for the Mid-Hudson ACS special awards.

Three students were awarded a certificate and a $50.00 gift card. The following are the Outstanding Award recipients from the Mid-Hudson ACS:

* Jason Yang (Roosevelt High School, Hyde Park): "Synthesis of Aspirin using the extraction of salicylic acid from acne cream"
* Isabella Del Toro (St. Mary School, Fishkill): "How Sweet it Is"
* Vincenzo Lombardo (Dutchess Day School, Poughkeepsie): "The Power of Citrus"

The Dutchess County Science Fair is one of the longest-running regional science fairs in the country, and is associated with the Regeneron ISEF science fair.

For more information about these science fairs, visit www.dcsciencefair.org, and www.societyforscience.org.

CONGRATULATIONS FUTURE SCIENTISTS.
THE ACS IS PROUD OF YOU!!!
Congratulations to the Recipients of the 2024 Undergraduate Student Research Awards

Julie Geller and Professor Leah Isseroff Bendavid, Vassar College, “Boronic Acid Adsorption on a Hydrated Titanium Dioxide Rutile (110) Surface: A DFT+U-D3”

Nicole Porcaro†, Matthew L. Gettings‡*, Chris Absil§, Nicholas Thomas‡, Katherine Verrill‡, Eileen Kowalski‡, and Jesse Sabatini‡, United States Military Academy, “Synthesis and Characterization of Novel Energetic Stabilizers”

Breille Irahoza and Dr. Alison Keimowitz, Vassar College, “Novel Fluid Additives for Enhanced Uranium Immobilization in Hydraulic Fracking”

Kayleigh Mason and Dr. Zachary Donhauser, Vassar College, “Tau Aggregation is Altered by Mutations in the Projection Domain”

From left to right: LTC Chi Nguyen, PhD; Breille Irahoza; Julie Geller; Kayleigh Mason; Nicole Porcaro; LTC Matthew Gettings, PhD
Photo Credit: Lynn Robinson

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The Hudson Valley Science Café is a monthly gathering open to the public. The essence of a Science Café is informality between the presenters and members of the community. Meetings are usually on the 4th Wednesday of the month.

Check the website for any upcoming presentations.

For information, or to suggest a speaker, please contact Dr. Toby Rossman at tobyrossman@yahoo.com

Please check the page https://www.facebook.com/hudsonvalleysciencecafe for more information
## 2024 Executive Board Members

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<th>Position</th>
<th>Name</th>
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<td>Chair</td>
<td>Patti Cusatis</td>
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<tr>
<td>Past Chair</td>
<td>Michelle Rissolo</td>
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<tr>
<td>Secretary</td>
<td>Josh Frey</td>
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<td>Alternate Councilor</td>
<td>Dawn Riegner</td>
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<td>Co-Awards Chairs</td>
<td>Patti Cusatis and Lynn Maelia</td>
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<td>Membership Chair</td>
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<td>SCC Chair</td>
<td>Glenn Roy</td>
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<td>USNCO Chair</td>
<td>Joe Tanski</td>
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<td>Joan Skinner</td>
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<tr>
<td>Mid-Hudson Chemist Editor/Publisher</td>
<td>Maryellen Sinclair</td>
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<tr>
<td>Chair-Elect</td>
<td>Ken McDonald</td>
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<td>Treasurer</td>
<td>Joan Skinner</td>
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<td>Councilor</td>
<td>Lynn Robinson</td>
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<tr>
<td>Members-at- Large</td>
<td>Ines E. Augie, Ashu Sharma and Lynn Maelia</td>
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<tr>
<td>DCRSF</td>
<td>Nicoline Kiwiet</td>
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<td>Earth Day Hike</td>
<td>Michelle Rissolo</td>
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<tr>
<td>NCW Chair</td>
<td>Chi Nguyen</td>
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<td>Publicity</td>
<td>Maryellen Sinclair</td>
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<td>Lynn Robinson</td>
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<tr>
<td>URS Chair</td>
<td>Pamela St. John</td>
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<tr>
<td>Webmaster</td>
<td>Patti Cusatis</td>
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<tr>
<td>YCC Chair</td>
<td>TBA</td>
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</tbody>
</table>
Get Involved and Connect With Us

Connect with us at:

Facebook:
www.facebook.com/MidhudsonACS

Join us on the Web and sign up for our list serve:
www.midhudsonacs.org

Get involved at our monthly board meetings.

Our next meeting is
Monday July 15, 2024 at 7 pm via Zoom
Contact our Chair Patrice Cusatis
patti.cusatic@basf.com