Susquehanna Valley Section
American Chemical Society

Annual
Education Awards
Banquet

Pine Barn Inn
Danville, Pennsylvania

May 2, 2022 5:30 p.m.

PROGRAM

I. Welcome and Introductions ..... *Dr. Allison Saunders*

II. 50-Year ACS member ..... *Dr. Allison Saunders*
DR. CHARLES B. SPAINHOUR

III. Joseph Priestley Service Award . *Dr. Allison Saunders*
DR. HOLLY BENDORF — Lycoming College

IV. Ron Blatchley High School Chemistry Teacher of the Year Award ..... *Mr. Ronald Blatchley*
MR. TODD DAVIS — Bloomsburg Area High School

V. National Chemistry Week Award .... *Dr. Karen Castle*

3-5 Category
GARRISON REINER — Upper Dauphin Elementary School
Teacher – Ms. Kelly Dietrich

6-8 Category
ALEXA FAZIO — Freeland Elementary/Middle School
Teacher – Ms. Catherine Tombasco

9-12 Category
JESSICA ZHENG — MMI Preparatory School
Teacher – Ms. Melissa McHale

VI. David H. Frederick Memorial Awards in High School Chemistry ..... *Dr. Charles Mahler*

MADALYN ELIZABETH THOMAS — Dallas High School
Teacher – Mr. John Fredericks

ALLISON ZEISS — Dallas High School
Teacher – Ms. JoAnn Morris

KAYLA NASH — Hanover Area Jr/Sr High School
Teacher – Dr. Jocelyn Holodick-Reed

JESSIECA AGUASIN — Honesdale High School
Teacher – Ms. Michelle Tonkin

OLIVIA MEYER — Lewisburg Area High School
Teacher – Ms. Angela Gockley

AARON RUOHONIEMI — Line Mountain High School
Teacher – Dr. Shelley Herb

MARIA DARRUP — Mifflinburg Area High School
Teacher – Mr. Matthew Wells

MACKENZIE VASBINDER — Mifflinburg Area High School
Teacher – Mr. Jeffrey Kiss

LUKE DELONG — Milton Area High School
Teacher – Mr. Jonathan Bixler

ANDREW BURNS — MMI Preparatory School
Teacher – Ms. Melissa McHale

EMILY RAKESTRAW — Montoursville High School
Teacher – Ms. Natalie Smith

THOMAS STEWART — Montrose High School
Teacher – Mr. David Corbin

PATRICK ZALONIS — Muncy Jr Sr High School
Teacher – Ms. Robin Peterman

SAMANTHA GREENFIELD — Old Forge High School
Teacher – Ms. Adrianna Rupprecht

AMIR AKACH	Scranton Preparatory School Teacher – Ms. Donna Barrett
MCKENNA PARKER	Selinsgrove Area High School Teacher – Ms. Tracy Hepner
SHANNEN PATRICIA SPRENKEL	Shikellamy High School Teacher – Ms. Yvonne Ferrante
LUCAS DUNKELBERGER	Shikellamy High School Teacher – Ms. Jenna Mowery
NICOLE MAE CANLAS	South Williamsport Area High School Teacher – Mr. Matthew Eisley

VIII. College Award Winners ..... *Dr. Ernie Trujillo*

ELIZABETH DECOTEAU	Bloomsburg University
KARLY FORKER	Bucknell University
TEAGAN CAMPBELL	King's College
KIYAH BELL	Lycoming College
DAVID SHEA	University of Scranton
ASHTON WEAVER	Susquehanna University
MATTHEW WIDDICOMBE	Wilkes University

IX. "Disinfecting our Indoor Environment: Intended and Unintended Chemistry"

Dr. Douglas Collins*, Bucknell University*

Cleaning activities are a strong connection point between the chemical enterprise and routine activities of the general public. Chemically-active cleaning and disinfection has proliferated in the face of the new light that has been shed on airborne disease transmission, along with evolving public expectations of health and safety, particularly in confined public spaces. However, the use of cleaning products and emerging disinfection technologies can introduce new environmental exposure issues. Most disinfection and/or cleaning techniques focus on surfaces and recent research has shown that surface cleaning can strongly influence the presence of air pollutants inside buildings through a variety of chemical mechanisms, including pH adjustments to partitioning equilibrium and/or multiphase chemical reactions. The public has also placed a strong emphasis on public institutions (particularly schools) to implement enhanced air cleaning. In addition to protecting people from airborne disease vectors, there are many important long-term health and cognitive co-benefits to cleaning indoor air, especially in places where children spend significant amounts of time. Simply put, school-aged children are healthier and do better in school when there is clean air to breathe. However, the pressure to retrofit new air cleaning technology into public buildings has placed decision-makers in a challenging situation. Emerging air cleaning technologies, many of which use chemical reactions to "clean" air, have flooded the market but are not subjected to rigorous safety and efficacy testing. When one uses a chemical reaction to remove a pollutant, some kind of byproduct must be formed. In general, it is assumed that byproducts are less harmful than the pollutant of interest - but this is often untrue. There are very few test standards available to characterize the diversity and abundance of by-products formed, and it is incumbent on chemists to more deeply explore the fundamentals of reactions used in air cleaners so that rigorous engineering test standards can be devised and implemented.

BIOGRAPHY

Dr. Douglas Collins has been a researcher in atmospheric chemistry and air quality for about 15 years. After graduating from Colgate University with a B.A. in Chemistry, he earned an M.S. and Ph.D. in Analytical and Atmospheric Chemistry from the University of California, San Diego. During his graduate work, Dr. Collins was a member of the Center for Aerosol Impacts on Chemistry of the Environment, an NSF Center for Chemical Innovation, as a researcher and later as Managing Director. While in San Diego, he used advanced mass spectrometry approaches to study the connections between chemistry, clouds, and climate processes. His early studies probed the ways that atmospheric aerosol particles influence clouds and precipitation in the Sierra Nevada Mountains during the winter (a key water source for California). Later, he moved into studying the manner in which microbial ecology in the ocean affected the production, chemical composition, and physico-chemical properties of sea spray aerosol particles. Dr. Collins parlayed the latter studies into a postdoctoral fellowship at the University of Toronto, where he studied the production and abundance of aerosol particles in the Canadian Arctic during summer -- which is an extremely clean environment in which marine biological activity plays a critical role. Aerosols and clouds in the Arctic during summer have strong control over climate-forcing processes in an extremely delicate region of the Earth. While in Toronto, Dr. Collins became engaged in detailed chemical studies of indoor air. Upon establishing a research laboratory at Bucknell University in 2018, his research has maintained an approach to understanding chemical processes at gas-liquid and gas-solid interfaces (like the ocean surface and the inner surfaces of buildings) from a fundamental chemistry perspective. His research group uses leading-edge separations and mass spectrometry techniques to investigate oxidation chemistry on realistic environmental surfaces that are exposed to polluted air. Prof. Collins has published 34 peer-reviewed research articles and 2 book chapters on his research and has been awarded more than $1 million in external grant funding to support interdisciplinary research at Bucknell.

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The American Chemical Society (ACS) is a nonprofit scientific and educational association of professional chemists and chemical engineers. Although the Society is primarily an American organization, virtually every nation is represented among its over 151,000 members.

Some of the many programs sponsored by the ACS are meetings, publications, education, awards, and public service activities, including National Chemistry Week. Each year, 1,500 ACS meetings are held at the local, regional, national, and divisional levels. Over seventy-five ACS journals are the leading resources in the chemical field. Educational activities include services to high school and college chemistry students and continuing education programs for its members. The ACS presents numerous awards for outstanding achievement in various fields of chemistry through national, regional, divisional, and local channels. Fellowships and research grants for basic research are administered by the society.

The Susquehanna Valley Section of the ACS includes members from eight counties in central to northeastern Pennsylvania.