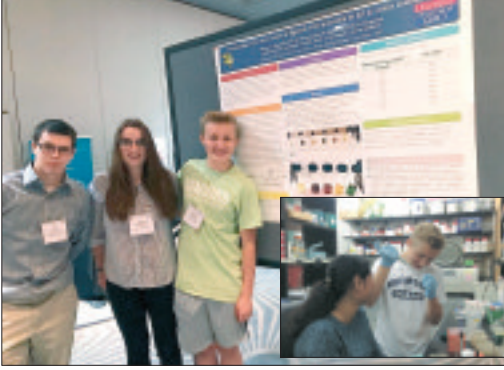


North student takes research to next level

By Mary Anne Brusch
Staff Writer

Winning an American Chemistry Society Ciba award in green chemistry is achievement enough. Winning it as a high school student is unprecedented. Grosse Pointe North High School senior Michal Ruprecht became the first high school student in the country to achieve this distinction since the program began in 2010. The other three awardees were graduate students from the University of California — Berkeley and University of Massachusetts Boston and an undergraduate student from Simmons College.

Administered by the ACS Green Chemistry Institute, the Ciba Travel Award enables students with an interest in green chemistry to travel to an ACS conference and expand their education by attending symposia, presenting their research and networking. Ruprecht plans to present his research topic — use of ligands to remove metals from aqueous substances — at the 226th ACS National Meeting and Exposition in Boston Aug. 19 to 23, 2018.



COURTESY PHOTOS

Presenting their poster at the ACS Chemistry Regional Conference in Dearborn were, from left, Ben Sosnowski, Polly Fitzgerald and Michal Ruprecht. Ben Sliwinski did not attend. Inset photo, Ruprecht, pictured with research assistant Chithra Kannachazhath Muralleedharan, worked in Sunbin Xu's lab at Wayne State University last summer.

Ruprecht's research was inspired by the Flint water crisis. Beginning last fall, he and fellow students from North's chemistry club participated in advanced organic and green chemistry research at the University of Detroit Mercy. Working with professor of chemistry Mark Benvenuto Ph.D., the

group — Ben Sliwinski, now a student at the University of Michigan, Ben Sosnowski, currently at Michigan Technological University, Polly Fitzgerald, a junior at North and Ruprecht — investigated the use of ligands — molecules that bind to other molecules — to pull metal ions from aqueous solutions. Benvenuto said his research team is in the process of publishing results from the project, with Ruprecht listed as a co-author.

While Benvenuto said he had done "plenty of outreach to high school students," this was his first time working with them as part of his research group. When students approached North chemistry teacher and chemistry club adviser Steve Kosmas about research possibilities, Kosmas reached out to Benvenuto. The result was what Kosmas described as a "great syn-

ergistic learning environment," with the four students working on a project Benvenuto said was a natural outgrowth of something his own students were doing.

"We were really passionate about this subject," Ruprecht said. "We concluded this ligand could potentially pull out ions from tainted waters. After several months of data collection, we were able to come together and analyze our data and create a science poster."

The students — representing the only high school group in attendance — presented their poster to professors, undergraduate and graduate students at the ACS Central Regional Conference in Dearborn in June. This achievement led to Ruprecht being awarded the 2016-17 Network of Educators in Science and Technology Student Award: Promise of the Future, setting the

stage for his Ciba Travel Award.

It was Kosmas who initially challenged Ruprecht to apply for the travel grant.

"I joked that we need to go to a national conference and present this research — knowing we didn't have the money," Kosmas said, adding he understood it was a long shot; the previous year's recipients were all Ph.D. candidates.

Ruprecht took the initiative to follow up, as he said the opportunity to present the poster at the national meeting will allow him to see how research is applied to other fields, including the medical field, which he hopes to pursue, and the political science field.

"Overall this experience was really great," he said. "I was able to pursue something I was really passionate about and I never thought it would go this far. I hope it inspires other people to do research."

In addition to the research experience, Kosmas credits Ruprecht for driving the chemistry club in other new directions as well, including development of the rock-etry club and more outreach activities. Membership has also grown, from about 10

members in 2015-16 to 40 this year.

"He has done so many amazing things, it's hard for me to keep track of them," said Kosmas, adding Ruprecht will graduate with three years of chemistry — honors chemistry, AP chemistry and organic chemistry — under his belt, an "extremely unusual" feat.

Last summer Ruprecht expanded his research horizons into the biological field with a focus on immunology, working with Shunbin Xu Ph.D., professor of anatomy and cell biology at Wayne State University School of Medicine, on a research project to develop new approaches to fight antibiotic-resistant bacterial infections and tumors that bypass the immune system. He hopes to continue this research in Xu's lab next summer.

"When you do research, you never really know what the end point will be," Ruprecht said. "You have an idea where you want to get to, but it's always a mystery and that's why I love research. I want to pursue this in my undergraduate and graduate studies and I can't wait to see what I uncover. I think of it as digging in a sandbox. You never know what you'll find."

Liggett student creates robotic elf

A new elf hit the shelf just in time to help deliver presents. Bella Metry, a sixth-grader at University Liggett School, finished building a robotic elf using the littleBits Droid Kit and Code Kit during Hour of Code, an annual event held during National Computer Science Education Week Dec 4 to 10, to promote interest in coding.

Through engagement with games and hands-on learning, students use littleBits Code Kits to invent, create and collaborate.

"I'm excited about the possibilities littleBits opens up for students interested in exploring STEAM concepts," said Nicholas Provenzano, middle school technology integrator and maker space director at Liggett. "Watching students explore and create using them is a wonderful part of the new maker space here at Liggett. I can't wait to see all the great things





PHOTO COURTESY OF LIGGETT

Liggett sixth-grader Bella Metry with her robotic elf.

students will create in the coming months." Educators are at the forefront of science, technology, education, arts and math curriculum across the country, according to Ayah Bdeir, founder and CEO of littleBits.

"The Hour of Code is just one element of what is becoming a dynamic and significant shift to more advanced STEAM," Bdeir said.



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