

From Science Bowler to Scientist

BY STEVE KARSJEN

FOR THE HUNDREDS OF STUDENTS WHO TRAVEL TO Washington, D.C. each year, the Department of Energy's National Science Bowl provides an incredible opportunity for teams to participate in intense competition, sightsee at the National Mall, and make new friends.

But for some students, the benefits don't end with just the obvious. The event also includes Saturday Science Day talks, given by the DOE's leading scientists, that provide the perfect forum for students to bombard scientists with questions on leading-edge topics. The answers they get can also hold importance down the road.

At least that's the way it's worked out for student William Meier. Meier was a member of the Oak Park



William Meier

High School team from Kansas City that competed in the 2008 National Science Bowl. Meier remembers his team having a great time during Science Bowl, as well as the Saturday Science Day talk that made a lasting impression on him, both because of the topic and the scientist who delivered it.

The scientist was Paul Canfield, senior physicist at the Ames Laboratory and Distinguished Professor of physics and astronomy at Iowa State University, who spoke on the design, discovery, growth, characterization and use of novel materials. The lively session included an informative back-and-forth exchange between the veteran scientist and the student participants.

"I have always enjoyed hearing from scientists very knowledgeable on a topic," says Meier. "I had a background in earth science and mineralogy at the time of the talk so I found Dr. Canfield's lecture incredibly interesting. Crystal growth seemed to be a great example of how I could combine several topics I loved."

"That was a really neat event," Canfield adds. "I specifically remember William coming up after the talk and discussing details of new materials growth and characterization. I was impressed with the depth of his knowledge, even at that time. He clearly had an interest in geology as well as basic crystallization."

As enjoyable as he found the exchange with Canfield, Meier's desire to learn more about crystal growth took a back seat to the National Science Bowl competition matches that weekend. After Science Bowl were his junior and senior years of high school and preparing for college and selecting a college major. Ultimately, Meier chose to pursue ceramic engineering at Missouri University of Science and Technology.

"I took a temporary detour from physics to materials," says Meier, "but I still took many courses in physics and chemistry at MS&T, which allowed me to indulge my interest in these topics."

"I even thought about changing my major to physics, but I enjoyed the engineering faculty in my department so I decided to finish my undergraduate degree first, then switch to physics for graduate school."

And that's when the interaction with Canfield he'd enjoyed some five years earlier resurfaced.

"I remembered Dr. Canfield's talk from 2008," said Meier. "So I called him up and he encouraged me to apply to the physics program at Iowa State."

Now a first-year graduate student in physics at ISU, Meier says his next step is to join Canfield's crystal-growth group. "I'm attending his group meetings, and it sounds like I will be learning some of the growth techniques this semester and summer."

"I was so pleased when William called me," Canfield says. "He really made an impression during that Saturday talk, and I was delighted at the idea of having him perform his Ph.D. research here. I think his background in geology and material science compliments the condensed matter physics work we emphasize. Ultimately new materials research draws from all of these sources and William has a good start at a very interdisciplinary foundation. The



Canfield and Meier met recently in Canfield's office, which prompted another lively discussion on new materials growth and characterization.

interdisciplinary nature of research is something that the Science Bowl, as well as the Science Saturday event, tries to emphasize."

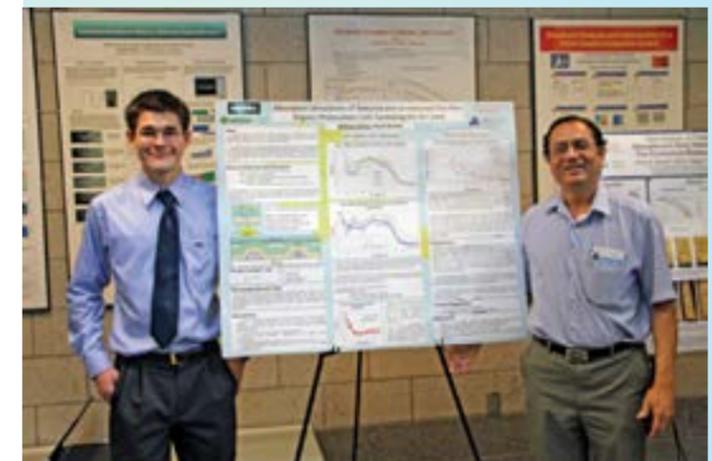
Early opportunities for interactions with scientists can "definitely influence career choices" says Meier, who hopes that after doing research as a post-doc at a university or national laboratory he can ultimately find a faculty position in physics or materials science and teach further generations. And who knows? Perhaps one day he'll be giving an invited Saturday Science Day talk at the National Science Bowl and another inquisitive student just like him will be in attendance.



Paul Canfield answers questions from William Meier (center left) and his teammates after the conclusion of his formal Saturday Science Day talk at the 2008 National Science Bowl.

Science Undergraduate Laboratory Internship

Besides the National Science Bowl, Meier also participated in the DOE's Science Undergraduate Laboratory Internship program, first at the Ames Laboratory, where in the summer of 2011 he worked with Rana Biswas, Ames Lab physicist, doing computer modeling of textured solar cells and then the following summer with scientists at Sandia National Lab.



William Meier and his Ames Lab mentor, Rana Biswas, at the 2011 SULI poster session.