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DENNIS ODA / DODA@STARBULLETIN.COM

Hauula Elementary students Ghialana Borges and Kalae Johnson, both 11, looked through blue and red filters on Monday to see how they affected objects bathed in ultraviolet light. The project, by Ben Cole and Michael Koochi, of Our Redeemer Lutheran School, was among those presented by 440 contestants at the annual Hawaii State Science and Engineering Fair.

Science projects impress judges

**Eclectic experiments at the annual exhibit
range from chemistry to volleyball defense**

[Big Isle students win top honors](#)

By Helen Altonn
haltonn@starbulletin.com

Iolani sixth-grader Hanna Pang became curious about the health benefits of the noni plant when a neighbor who drinks the juice every day wondered if it really helps.

Pang tested noni on mealworms to see if they grow larger or survive longer and exhibited the results this week at the 46th State Science and Engineering Fair at the Blaisdell Center exhibition hall.

More than 440 secondary school students from 71 public and private schools competed for thousands of dollars in cash and scholarship awards. They were nominated at district and school science fairs to compete in the state event, sponsored by the Hawaii Academy of Science.

About 200 scientists judged the student work, representing the gamut of research from behavioral and social science and biochemistry to physics and zoology.

As a sampling, projects ranged from Pang's "Noni or Not Noni, That Is the Question" to "Artificial Intelligence: Maze Learning," by Kailua High School 10th-grader Brian Kuriyama, to "Variables that Affect the Strength of an Electromagnet," by Kahuku High & Intermediate ninth-grader Jeff Speer, and "Quantifying Ball Placement: An Analytical Approach to the Selection of Effective Volleyball Defense Schemes," by Kapaa High School senior Melissa Yama and junior Rodney Yama.

"For people always talking stink about school kids, they should come down here and see this," said retired Chaminade University professor Art Mori, one of the science academy judges. "I've been coming down for years, and they're getting better each year. It's very impressive."

After controlled tests on mealworms, Pang concluded that the noni plant has health benefits but only "in certain stages of life." She said she told her neighbor she is not sure if the plant helps her, "but in her mind she believes it will help because she's Hawaiian."

Kamie Oda and Kelsey Wilburn, Waiakea Intermediate School eighth-graders, looked to their backyard on the Big Island for research topics.

Oda went to Lake Waiau and studied Makaanaka Glacier for her project, "Fire and Ice: Glacial Evidence on Mauna Kea."

"I got to see all the evidence firsthand," she said, describing boulders "as huge as cars. It really surprised me how natural forces such as a glacier can make huge rocks like this. ... It's pretty cool - a tropical island in the middle of nowhere with a glacier on top of it."

Wilburn tackled the question "Mauna Loa: Are We in Danger?" because she lives at Volcano and was worried about a potential eruption burying her home with lava. After studying scientific methods and instruments, she decided Mauna Loa will not erupt "today or tomorrow, but it can

happen in months or years."

Dr. Michael Garcia, a UH geology and geophysics professor who was one of the science academy judges, said he has been involved with the fair more than 20 years and has seen the overall quality of the exhibits improve.

Many students now get help from mentors at the universities, private companies or government institutions, which makes a dramatic difference, he said.

In judging the exhibits, William Mass, retired Tsunami Warning Center physical oceanographer, said he considers advantages students have with coaches and whether they can explain things that are not in the display.

Students may enter the fair for a chance at one of the many scholarships, said Shiyana Thenabadu, fair director. "But if in the process the student understands the scientific method and becomes interested in science, we have achieved our objective."

Big Isle students win top honors at science fair

By Helen Altonn
haltonn@starbulletin.com

Two Big Island students captured the top senior and junior research awards for the second year in the 46th Hawaii State Science and Engineering Fair.

It was also the second senior research win for Kimberly Reinhold, 10th-grader at St. Joseph Junior and Senior High School. Her project this year was on "Artificial Neural Networks: A Model of Perception by the Visual System." She was one of four students winning trips from the State Science Fair to the Intel International Science and Engineering Fair, May 10-17 in Cleveland.

Chae Cowan, eighth-grader at Connections PCS, won the junior research division with his project, "How Various Rules Affect a 2D System of Cellular Automation."

Other winners

>> Other students who won trips to the international fair were Jill Harunaga, senior, Kamehameha, "Damnacanthal and the Cytoskeleton: Noni anthraquinone Normalizes Cancer Cell Phenotype";

and Alana Yurkanin and Kaitlin Luther, 10th-graders, Baldwin High, "Do Different Sounds Have the Ability to Attract or Deter Sharks?"

>> Also going to the international fair after district science fair wins will be, from Kapaa High on Kauai, Ricky Rodrick, Whitney Haraguchi and the team of Jeremy Albano, Carrie Esaki and Sam Moats-Messing; from Waipahu High, Karen Tumaneng and Tristan Sotto; from Kailua High, Caroline Yamamoto, who declined the trip; from Maui High, Matthew Jachowski; from Kamehameha Schools, Kiani Arkus and Kiana Frank; and for a team project, Jenae Reyes and Chivas Wakuta.

>> Top winners in the State Science Fair senior research category were Reinhold, first; Jachowski, second; and Kiani Arkus, third. Wakuta and Reyes had the best senior research team project.

>> Junior Research winners: Cowan, Connections PCS, first; Ren Ishii, Kawanaukoa Middle School, second; and Jason Tsang, Waiakea Intermediate School, third.

Kim Kitabata and Raymond Chee, of Kawanaukoa Middle School, had the best junior research team project.

>> Junior Display winners were Kelsey Wilburn, Waiakea Intermediate School, first; Sachiko Pettit, Iolani School, second; Kamie Oda, Waiakea Intermediate School, third.

Reyn Kimura and Rance Fujiwara, of Iolani School, had the best junior display team project.

>> Receiving major awards were Amy Watanabe, Windward District Science Fair coordinator, Chevron Teacher Trip to the international fair.

Jachowski, Maui High School, won the Honolulu Star-Bulletin perpetual trophy and a \$500 bond for the best senior research project by a public school student. Jachowski also won a trip to Mauna Kea from the University of Hawaii Institute for Astronomy, including a night at a telescope, certificate of recognition and astronomy poster for the best senior research project in astronomy.

Cowan, Connections PCS, won the Hawaii Department of Education Chamberlin Perpetual Trophy for the best junior research project by a public school student.

Dominic Macanas, Wahiawa Middle School, and Elena Osawa, St. Andrew's Priory, each received \$25, an astronomy poster and a certificate for outstanding astronomy projects in the junior divisions.

>> Winning college scholarships were Kolea Zimmerman, Waiakea High School, one-year full tuition at UH-Manoa, \$3,120, from the UH Foundation; Karen Tumaneng, Waipahu High School, \$8,500 tuition scholarship, Chaminade University; Reinhold, one-year tuition scholarship, \$9,360, Hawaii Pacific University.

>> The McInerny Foundation awarded \$1,000 to each of the following students for college tuition and a matching \$1,000 award for the winners' teachers to purchase classroom supplies: Cameron

Lewis, Hawaii Preparatory Academy, and teacher Deighton Emmons; Eisha Matsubara, Waiakea High, and teacher Jamie Nekoba; Sharon Wallace, Waialua High, and teacher Glenn Lee; Arkus, Kamehameha, and teacher Lawrence Mordan; Jachowski, Maui High, and teacher Keith Imada; and Daniel Young, Kailua High, and teacher Teresa Cheung.

Science and Engineering Fair