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San Mateo and Hillsdale high students help develop tool to identify star types

By Will Liu San Mateo County Times
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San Mateo and Hillsdale high school students have teamed up with their teachers and professors at College of San Mateo to develop a tool to identify star types, a star's radius and its distance from the Earth by analyzing the energy a star emits.

San Mateo High junior Katherine Hsu presented the team's findings recently to more than 1,000 astronomers gathered for the American Astronomical Society Meeting in Seattle.

"Learning astronomy really opened my eyes," Hsu said. "It made me feel really small in comparison to the universe."

The tool was developed in a Google document format making it accessible to anyone with Internet access. The team plans to continue its research by using its software to distinguish stars in a cluster from those in front or behind it.

Larry and Ryan Chew of San Mateo High worked with a team of astronomers demystifying the dark body that eclipses the star Epsilon Aurigae every 27.1 years. From their analysis of data taken at CSM, they believe that Eps Aur is eclipsed by a companion star with a large dust disk.

The solar system size disk shows varying density of dust indicating it may be forming planets. In other words, their data may indicate that the companion star in the binary is in the early stages of solar system formation.

Larry has been working on the Eps Aur research since October 2009. "Amazing what you can learn about something so far away," he said.

Both Larry and Ryan put in hours

of work during lunch, after school, and over summer vacation.

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Sally Seebode, a San Mateo High teacher, along with other teachers, were paired with astronomers such as Donald W. Hoard at Caltech and Steve B. Howell at the National Optical Astronomy Observatory.



Katherine Hsu, from San Mateo High School talks about a research project she... (Dan Honda)

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"With the current emphasis on testing, science classes have moved away from doing real science," said Seebode, the adviser for the school's astronomy club.

She said the program "gives students a chance to learn by doing. The students' research is not a repeat of what scientists have done with a known answer. Nobody knows the answer. It's original science."

Larry took a chemistry class with Seebode two years ago.

When he expressed interest in astronomy, Seebode told him about the research she was working on and offered to let him be part of it.

"It was mostly about my curiosity," Larry said. "I was curious about how we can measure something so far away with tools that we have on Earth."

Seebode also reached out to science teachers at Hillsdale High, and another group of students became intrigued by the idea of doing scientific research.

"I thought it would be cool to find the correlation between astronomy and physics," said Nathan Mooney, a graduating senior at Hillsdale High.

The experience the students received is rare and privileged.

Hoard, the research scientist at Caltech who coordinated the program, said there were only six to eight groups of students across the nation involved in the program in 2010.

He said astronomy is a field that is constantly discovering new things in the infinite universe, and the students are right in the midst of it. "It's exciting to see them gathering information that hasn't existed yet," Hoard said.

NASA WORK

The agency sponsors a research program that pairs professional astronomers with high school students and college teachers

A curiosity

Every 27.1 years, a mysterious dark body eclipses the distant star Epsilon Aurigae

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Shannon Allen · S.F. State

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