

# Union City STEM

## Student is Out of This World

### Junior Discovers Distant Exoplanet

By Mikaela Querido

Most of [space] is hypothetical.” Ramzi Saber says. “But I’m not a hypothetical person. I want answers.”

Ramzi Saber is a junior at the Union City Jose Marti STEM Academy. He has recently been recognized for his scientific feat of discovering an exoplanet more than 125 light years away. According to an article published on NJ.com the planet sits in empty space.

Ramzi immigrated from Morocco in 2009 to the United States with his mother, Ms. Ilham Chemame. The two of them were able to come to America through a visa lottery. He recounts a time, when he was six years old, he traveled by cab in America for the first time. Ramzi and his mother were en route to a distant family friends’ house, where they would be staying. He remembers how his mother began to cry, wondering if coming to America was worth it. However, Ramzi consoled his mother, telling her to give it a month.

“We were going to go through a lot and the best thing we could do is be there for each other,” Ramzi said. He further explained how the most important part of his research is “to prove to her that it was worth it.”

Ramzi has always been infatuated by astronomy. He remembers taking trips from the city in which he lived in Morocco to his grandmother’s village. “It was quiet,” the junior recounted. “But most importantly there was little to no light pollution.”

Many of the houses did not have any roofs, so as he fell asleep, he looked at the stars; from a young age he was filled with so

many questions.

“We know little to nothing [about space].” Ramzi said. But he continued explaining you could take that in one of two ways, either “we can’t get anything from it” or “I can find something never found before.”

Saber opted for the latter. As a freshman entering high school he was able to take part in research and got the opportunity to learn about space and astronomy. The idea for discovering a planet came from The Massachusetts Institute of Technology. There was a research publication that described a group of students that wanted to discover stars in distant galaxies. After completing their goal, finding about 50 to 60 stars, they opened their database to anyone—all you needed to do was email them. Ramzi jumped at the opportunity and was able to gain access to their database. When he chose his star, he recounted he chose the one that “had little data.”

Immediately Ramzi hit with a hurdle—“I could not understand anything from [the] data base,” he said. Therefore, Ramzi taught himself pieces of calculus and statistics in order to understand it and be able to manipulate certain variables within the database. He then confirmed that there was a good probability of there being a planet in the region he selected. The first person he told was his mother. Ms. Chemame said she remembered that she was speechless. “I’m still in shock,” she said. In this moment, Ramzi knew he needed proof or else no one would believe him, so he went back to the MIT article. He explained in order to confirm the planet’s existence, he needed to gather the mathematical proof, visual proof, and chemi-



cal proof (e.g the size of the planet and of what it is made).

After gathering meeting these three criteria, Ramzi concluded that there was an extremely high probability of this exoplanet’s existence. Saber then, got in contact with Dr. Jose Lopez, a professor of Astronomy and Physics at Seton Hall, hoping to get professional confirmation of his work.

“There are not a lot of people who can give solid answers,” Ramzi said as he described his first interaction with Dr. Lopez. When Saber presented his research to him, “it was either go or go home.” Luckily, Dr. Lopez confirmed that this was indeed a discovery and told him to “keep on going,” Ramzi stated. “There were no questions left unanswered,” Ramzi said.

He was “really, really happy” in this moment, he commented. Ramzi now waits to be published in a scientific journal but with this project he has already won many awards including the NASA Earth Systems Award, the United States Air Force Award, and the American Meteorological Award, all in 2019 alone.

Ramzi explained, “it may look like I did so much work, but I used the Internet.” He continued saying

how his utilized Youtube and other online resources to teach himself throughout a large bulk of this process.

Ms. Patricia Donnelly, his research mentor since freshman year and science teacher at the Jose Marti STEM Academy, said “He did all the work on his own... It is all Ramzi.”

“It took time and dedication,” Ramzi said. “But I never got bored of it.” Ramzi explained Ms. Donnelly has helped him “mentally and morally” throughout this process and is a great mentor. He continued saying how important his mother was to him as a mentor as well, “my goal is to make my mom realize it’s worth it.”

Referring to leaving their family and immigrating to America. “I’m so proud, so lucky to have him. He’s my everything,” Ms. Chemame said. “Planet or no planet, I’m proud of him as a person.”

In the future Ramzi hopes to go into aerospace engineering- maybe one day working for NASA. But family is everything to Ramzi He explained when he makes it the “first thing I’m going to do is buy a house for my mom and my family.”

*WPIX-TV, NJ.com and The Jersey Journal contributed to this report.*