**Name:** Nicholas (Nick) Susemiehl

Code: 693

Home institution: Southeastern Universities Research Association (SURA)

Name of task: Exospec, Planetary Spectrum Generator (PSG), Exoplanet Modeling and Analysis Center (EMAC)

What do you do for CRESST: I am a post-baccalaureate research assistant working on the Exospec, PSG, and EMAC projects at Goddard. As part of my work with Exospec and PSG, I am developing grid-based forward modeling techniques for use in the spectral retrieval of reflected light terrestrial exoplanets. I will then use the grids produced via my findings to demonstrate the extreme speed of the retrieval package provide by PSG. I am also a member of the EMAC science support team through which I help guide the development of the site from the perspective of a scientist.
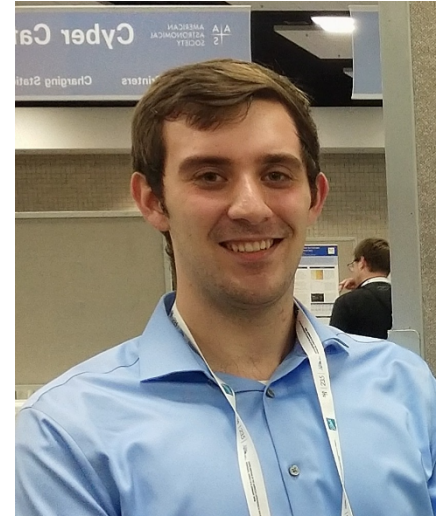
What is your background:
I was born and raised in Waterford, Michigan, a suburb of Detroit. My interest in astronomy developed in middle school when I was inspired by popular science communicators and documentaries. I went on to major in astrophysics at the University of Michigan in Ann Arbor. There, I was heavily involved in the Student Astronomical Society as well as astrophysical research. Around the same time, I also developed an interest in statistics and data science. This has led me to pursue a master's degree in Analytics at the Georgia Institute of Technology, where I currently remotely study parttime. I joined CRESST and NASA soon after earning my bachelor's degree in the Spring of 2020.

Favorite part of being a CRESST Scientist:
I consider it a great privilege and a fulfillment of my dreams to work as a CRESST Scientist at NASA. I am very grateful for the numerous opportunities to learn and grow that have been given to me through the post-baccalaureate program.

Highlight of research as a CRESST Scientist:
My research has focused on finding and developing optimal techniques for the spectral retrieval of terrestrial planets in reflected light. In doing so, I have thus far compared a variety of forward modeling and retrieval techniques and developed an algorithm to construct the grids used in this process. In my work with EMAC, I have developed additional functionality for the site which expands the options available to users and spearheaded the analysis of the website's traffic data.

Publications:
On the Orbital Separation Distribution and Binary Fraction of M Dwarfs, **Susemiehl** and Meyer 2021, In review.
Planetary and Brown Dwarf Companion Mass Ratio Distribution versus Stellar Mass and Orbital Separation, Meyer, Amara, **Susemiehl**, Peterson 2021, In review.

Conference:
The Orbital Surface Density Distribution and Multiplicity of M Dwarfs, American Astronomical Society meeting #235, **Susemiehl** and Meyer, 2020.

Award won:
2020 – Service award from the Astronomy Department of the University of Michigan for outreach and volunteer work.

To Contact Nick to learn more about his work or collaboration, he can be reached at:
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