

Big Data Visualization and the Autistic Mind



Keivan Stassun

Professor, of Physics and Astronomy Director, of Vanderbilt Initiative in Data-intensive Astrophysics (VIDA)

CURRENT RESEARCH

Hearing the stars sing to find earth-like worlds

Imagine out in space that there are other Earth-like planets where human life is a possibility and in fact, other life forms we have never seen before exist. For many, this thought experiment feels like a science fiction daydream however, Dr. Keivan Stassun, of Vanderbilt University, is a leader in the search for such Earth-like planets. Ultimately, he and his team are hoping to discover if our Earth is unique in the galaxy or if there are other earths out there. In addition he hopes to understand the many properties that set planets apart from one another. Perhaps most unique about his team, in addition, to their incredible research questions, is their strong focus on neurodiversity. By placing a strong emphasis on educating research assistants that are on the autism spectrum, Dr. Stassun is able to implement innovative tools that require the unrivaled data visualization abilities of individuals on the spectrum.

Dr. Stassun's development of innovative tools for space exploration have identified him as a leader in the field. His technique, called "stellar flicker," allows his team to accurately measure the age and size of a star simply by "hearing" the amount of high-frequency "hiss" in the light variations of the star, and in this way accurately determine the properties of any planet orbiting the star. Utilizing data from his telescope in South Africa as well as data from the NASA Kepler and TESS missions, Dr. Stassun expects to be able to fully extract the "stellar flicker" signals from the full dataset in the next five years. This will move his team one step closer to finding a handful of truly Earth-like systems!

Research includes:

- Massive Data in Astronomy: The...

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AFFILIATION

Vanderbilt University

EDUCATION

- B.A., in Physics and Astronomy, 1994 . University of California, Berkeley
- Ph.D., in Astronomy, 2000 . University of Wisconsin-Madison
- NASA Hubble Postdoctoral Fellow, 2001-2003 . University of Wisconsin-Madison

AWARDS

- Career Award, National Science Foundation, 2004
- Chancellor's Award for Faculty Research, Vanderbilt University, 2007
- Fellow, American Association for the Advancement of Science, 2012
- Nicholson Medalist for Human Outreach, American Physical Society, 2013
- Diversity Visionary Award, Insight into Diversity Magazine, 2015

RESEARCH AREAS

Environment, Atmospheric / Space, Space

FUNDING REQUEST

Your contributions will support the continued research of Dr. Stassun, of Vanderbilt University, as he searches for Earth-like planets beyond within our solar system. Donations will support personnel. Specifically, \$100K/year will support postdoctoral students, \$50K/year will support programmers, and \$100K/year will support two graduate students. In choosing to donate you will not only explore the incredible unknowns of space but also play a role in expanding neurodiverse employment within the sciences.