Professor Angela Speck, Director of Astronomy, MU

Angela K. Speck (Ph.D.) is a (Full) Professor of Astrophysics and the Director of the Astronomy Program at MU. She built the astronomy program starting with her arrival at MU in 2002 and is responsible for mentoring MU students within and outside the Physics & Astronomy department with an interest in pursuing Astronomy/Astrophysics. She has advised/mentored more than 30 undergraduate and more than 10 graduate-student researchers in the last decade. In addition, Prof. Speck is currently an elected member of the American Astronomical Society (AAS) Council whose mission is to enhance and share humanity's scientific understanding of the Universe. She is also the institutional leader for MU's role in CIRTL (Center for the Integration of Research, Teaching and Learning) which is committed to improving STEM education through improving the preparedness of STEM graduate students for their future careers. Prof. Speck's academic career exemplifies the idea that there should be a strong synergy between the research, teaching and service components for any faculty member. Rather than being separate components, she views all three as intimately linked by two-way feedback. There is an education theme that runs through all these aspects of her academic life.

Prof. Speck has research interests in both the nature of stardust and astronomy education (which is rapidly expanding to incorporate other STEM field). From a pure science research perspective, Prof. Speck is an infrared (IR) astronomer with broad experience including stellar evolution, astromineralogy and dust around evolved stars, galactic chemical evolution, meteoritics and the optical properties of materials. Her primary focus is circumstellar dust, which pertains to basic questions of galactic processes and the origin of interstellar dust. Most of her research involves stardust. Dust is a vital ingredient in many astrophysical environments. It is an essential part of star and planet formation processes; it contributes to several aspects of interstellar processes including gas heating and the formation of molecules. Furthermore, because mass-loss from evolved stars is driven by radiation pressure on dust grains, it is intimately linked to the precise nature of the circumstellar dust. Dust needs to be well understood in its own right, if we are to understand its contribution to many aspects of astrophysics. The main thrust of Prof. Speck's research is to understand the precise nature (composition, size, crystal structure and shape) of cosmic dust grains. She uses a multidisciplinary approach to constrain the dust species present around evolved stars. This work involves a combination of chemistry, mineralogy, isotope geochemistry and physical optics, as well as IR astronomy and stellar evolution and is currently funded by several National Science Foundation grants (including a NSF CAREER award). Professor Speck holds an adjunct position in Geological Sciences because of the overlap in her research interests. Her observational studies have also led Prof. Speck to the Chair the National Optical Astronomy Observatory (NOAO) Users Committee and serve on the search committee for the Director of the Kitt Peak National Observatory.

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