

Measuring Anisoplanatism for Astronomical Adaptive Optics Imaging

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Astronomical adaptive optics imaging suffers from anisoplanatism. Anisoplanatism is the spatial variation of a point spread function, which is the image produced by an optical system when looking at a point source. Pairs of stellar images had the anisoplanatism measured between them in order to improve the object estimates from deconvolution. An Interactive Data Language (IDL) package was created and applied to analyze pairs of stellar images to compute the normalized cross spectrum between them. The quantitative measure of anisoplanatism, and the measure of difference between point spread functions is represented by the normalized cross spectrum. Anisoplanatism was investigated for a broad range of data sets, and there are results showing spatial variation between the stellar images. These results give us a better understanding of the point spread functions of the images.

Danielle Robbins just completed her junior year at the University of Maryland Baltimore County (UMBC), where she is a Meyerhoff Scholar. She is a Mathematics major and a Computer Science minor. At UMBC she is heavily involved with Track and Field, the National Society of Black Engineers, the New Student Orientation committee, and various other programs and organizations. Upon completion of undergraduate school she hopes to attend graduate school, where she plans to focus in computational or financial mathematics.

