

Astrometric Accuracy on the Ten Meter Keck Telescope
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We are engaged in measuring the astrometric accuracy obtainable from telescopes equipped with adaptive optics systems. This is accomplished by measuring the variable separation between several bright stars in a sequence of images of the Galactic Center, where the changes in positions of the stars with respect to each other is due to changing atmospheric conditions and adaptive optics compensation. In this way, our research will bear particular relevance to the thirty-meter telescope whose construction is currently under consideration and would make possible the observation of periods of ~ 0.8 sidereal year and velocities of ~ 3142 astronomical units per sidereal year. Our measurements of the relative separation between five bright stars (IRS 16C, 16CC, 16SW, 16SW-E, 29N) demonstrates that bright stars separated by one milliarcsecond have an root mean square of one milliarcsecond and indicates that atmospheric models for this type of measurement (<http://astron.berkeley.edu/~jrg/TT/node2.html>) are accurate. This model verification allows us to predict the astrometric performance of a thirty-meter telescope.