

Abstract Submitted
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High Angular Resolution Investigations of Binary Stars JENNY PATIENCE, ROB DE ROSA, ASU, LISA PRATO, GERARD VAN BELLE, Lowell Observatory — With long baseline optical/infrared interferometry, it is possible to probe uniquely high angular scales and investigate the frequency and properties of binary stars. The angular resolution provided by the Navy Prototype Optical Interferometer (NPOI) allows for the detection of close (5-700mas) binaries with a magnitude difference reaching approximately 3 magnitudes in R-band. Measurements of the binary fraction, mass ratio distribution, and separation distribution represent key statistical properties of binary stars which are important to understand the formation of stars and planets and the survivability of protoplanetary disks in binary systems. By mapping the orbits of young binary stars, it is possible to perform key empirical tests of evolutionary models. We detail the status of an ongoing volume-limited survey of nearby A- and B-type stars covering the important separation range between 1 and 15AU, complemented by AO observations to resolve wider companions. With our large, unbiased volume-limited sample, these observations will allow for the first constraint on the multiplicity of these massive stars over this separation range. A subset of these targets will also be included in upcoming extreme AO planet imaging searches, enabling a search for circumbinary planets.

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