

The Palomar Testbed Interferometer



What is PTI?

The Palomar Testbed Interferometer (PTI) is the world's most successful astronomical interferometer to date. PTI was built as a technology testbed for advanced telescope technologies being developed to find planets around other stars, and has become a productive scientific instrument in its own right.

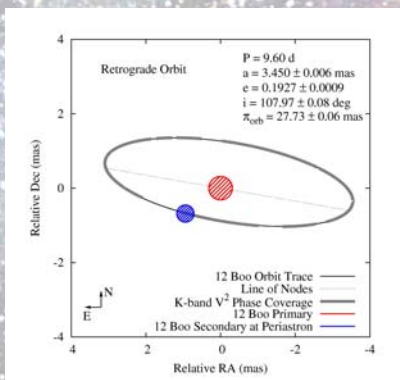


National Aeronautics and Space Administration
Jet Propulsion Laboratory
California Institute of Technology

What is Interferometry?

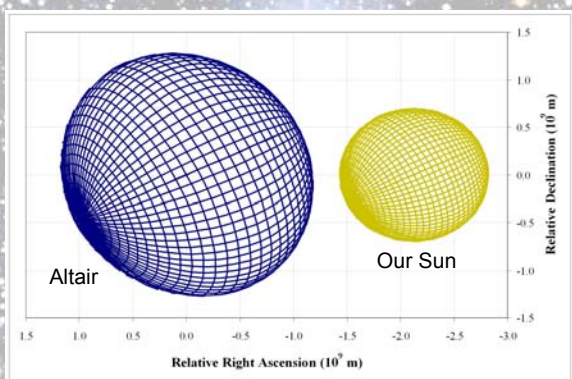
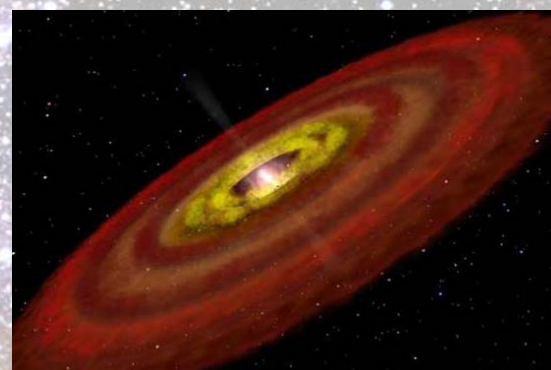
An astronomical interferometer is a telescope that uses many small telescopes to synthesize the resolution of a much larger telescope. PTI uses 16" (40cm) telescopes separated by over 350 feet (109m) to get unprecedented resolution on the sky, picking out details undetectable by traditional single-mirror telescopes. In contrast to the Hale telescope, which is limited to objects greater than 0.1 arcseconds in size, PTI can measure certain sizes down to 1 milliarcsecond. We like to think of it as Palomar's 4300 inch telescope!

Notable PTI Achievements



Orbits of Binary Stars

PTI has been instrumental in directly measuring the orbits of binary stars. By tracking these minute orbits (left), a hundred times smaller than what a normal telescope can see, PTI can accurately measure the masses of these stars.



Stellar Shapes

PTI was the first telescope to directly measure the shape of a star other than our sun. Altair, shown at left, is twice the size of our sun but spins 60 times faster – hence its distorted shape, seen by PTI.

Young Stellar Objects

By observing stellar infants such as T Tauri (artist's conception, above), PTI has helped probe the early life of stars like our sun. Such observations can tell us about the disks which help form the stars and provide material for planet formation.