Astrometric observations of neutron stars
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Abstract. Astrometric observations of neutron stars have been conducted with a variety of
techniques and over a wide range of wavelengths, ranging from radio-pulse timing and Very Long
Baseline Interferometry to optical and X-ray imaging. Here I review the techniques and scientific
goals behind recent high-precision neutron-star astrometry. Such measurements can yield model-
independent distances and velocities that can be exploited, for example, to locate neutron-
star birth sites, establish reference-frame ties, model the Galactic electron-density distribution,
and constrain the astrophysics of supernova explosions. Recently, the Fermi gamma-ray space
telescope has identified several highly luminous recycled pulsars, and precise measurement of
their distances is of paramount importance to understand their energetics and astrophysics.
The ongoing science returns from precision astrometry will continue in the long term with
improvements in technology such as focal-plane arrays and synergies with new telescopes such
as Gaia and the Square Kilometer Array.

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