

SUB-MILLIARCSECOND ASTROMETRY WITH PHASE-REFERENCED VLBI

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Astrometric VLBI observations of radio stars are being made to connect the **Hipparcos** and **extragalactic** radio reference frames. Typically, the antennas are switched between a star and a strong, compact reference source a few degrees away every 2-3 minutes. After correlation, the strong reference source fringes are used to determine the exact delay and rate of the weak radio star fringes, allowing the visibilities to be measured and coherently integrated for the duration of the experiment. As a result accurate astrometry has been possible on radio stars with flux densities as low as 2 mJy. All five astrometric parameters (two positions, two proper motions, and one parallax) have been obtained for several stars, with formal errors and epoch-to-epoch residuals less than 1 **milliarcsecond**.