

## **Polarimetric Pulse Profile Modeling: Applications to High-Precision Timing and Instrumental Calibration**

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**Abstract.** A new method was presented for modeling the transformation between two polarimetric pulse profiles in the Fourier domain. In practice, one is a well-determined standard with high signal-to-noise ratio and the other is an observation that is to be fitted to the standard. From this fit, both the longitudinal shift and the polarimetric transformation between the two profiles are determined. Arrival time estimates derived from the best-fit longitudinal shift are shown to exhibit greater precision than those derived from the total intensity profile alone. In addition, the polarimetric transformation obtained through this method may be used to completely calibrate the instrumental response in observations of other sources. A more detailed description of these results is available in van Straten 2004, [astro-ph/0402666](#).