

## **GASP-Galway astronomical Stokes polarimeter**

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**Abstract.** The Galway Astronomical Stokes Polarimeter (GASP) is an ultra-high-speed, full Stokes, astronomical imaging polarimeter based upon a Division of Amplitude Polarimeter. It has been developed to resolve extremely rapid stochastic (~ms) variations in objects such as optical pulsars, magnetars and magnetic cataclysmic variables. The polarimeter has no moving parts or modulated components so the complete Stokes vector can be measured from just one exposure - making it unique to astronomy. The time required for the determination of the full Stokes vector is limited only by detector efficiency and photon fluxes. The polarimeter utilizes a modified Fresnel rhomb that acts as a highly achromatic quarter wave plate and a beamsplitter (referred to as an RBS). We present a description of how the DOAP works, some of the optical design for the polarimeter. Calibration is an important and difficult issue with all polarimeters, but particularly in astronomical polarimeters. We give a description of calibration techniques appropriate to this type of polarimeter.