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RF Jitter Modulation Alignment Sensing L. F. ORTEGA, University of Florida, P. FULDA, Goddard Space Flight Center, M. DIAZ-ORTIZ, G. PEREZ SANCHEZ, G. CIANI, D. VOSS, G. MUELLER, D. B. TANNER, University of Florida — We will present the numerical and experimental results of a new alignment sensing scheme which can reduce the complexity of alignment sensing systems currently used, while maintaining the same shot noise limited sensitivity. This scheme relies on the ability of electro-optic beam deflectors to create angular modulation sidebands in radio frequency, and needs only a single-element photodiode and IQ demodulation to generate error signals for tilt and translation degrees of freedom in one dimension. It distances itself from current techniques by eliminating the need for beam centering servo systems, quadrant photodetectors and Gouy phase telescopes. RF Jitter alignment sensing can be used to reduce the complexity in the alignment systems of many laser optical experiments, including LIGO and the ALPS experiment.

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