Supplemental Document

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Liquid-crystal based drift-free polarization modulators: Part II. Ultra-stable Stokes and Mueller polarimeters: supplement

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Liquid-crystal based drift-free polarization modulators - Part II. Ultra-stable Stokes and Mueller polarimeters: supplemental document

Simulating LCVR operation with an LCM. Figure S1 compares the evolution of the retardance of an LCM in its normal configuration (compensated temperature dependence) and in a setting simulating an LCVR (φ_B=0).

In this experiment, the temperature in the enclosure was set successively to 22, 38, and 50°C. The retardance of the LCM was measured for a set of φ_A and φ_B values.

The figure illustrates how the temperature-dependence vanishes at low retardance in the LCVR setting. It also shows the effectiveness of the LCM for obtaining stable retardance values over a wide temperature range.

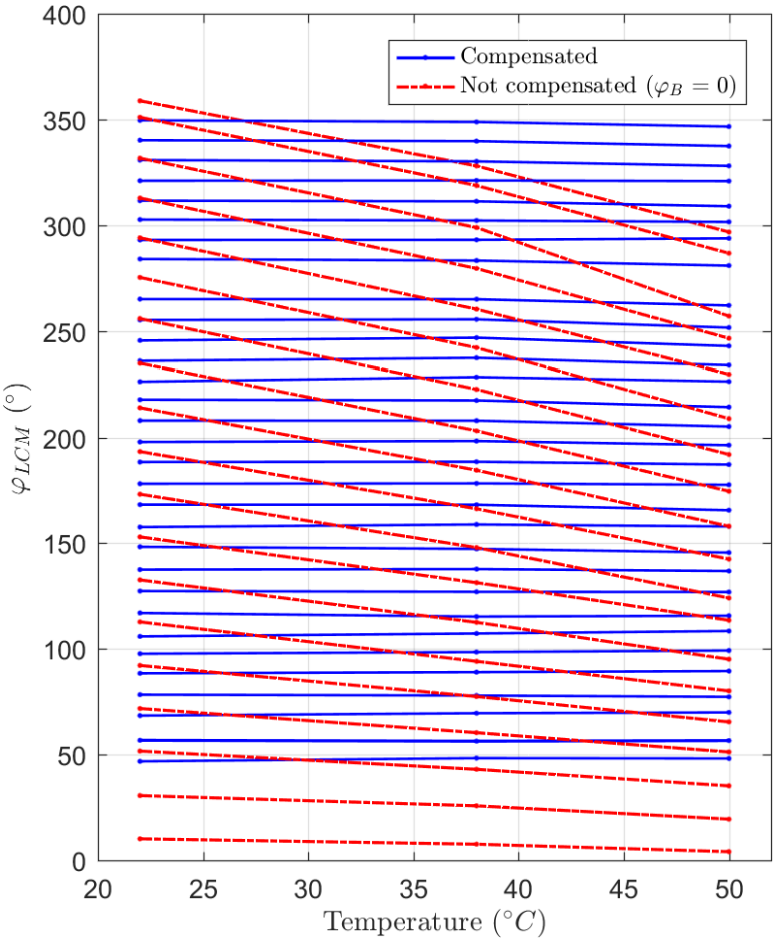

Fig. S1. Temperature dependence of the retardance of a LCM with compensation (LCM, blue lines) and without compensation (simulating a LCVR, red dotted lines).

Repeatability of the measurements. We compare two measurements with the same system (see section 3 and figure 3) and the same configuration as the experiments described in the main document. Measure 1 and measure 2 were performed at few days' interval.

Figure S2-S4 are counterparts to Figure 4-6 of the main document.

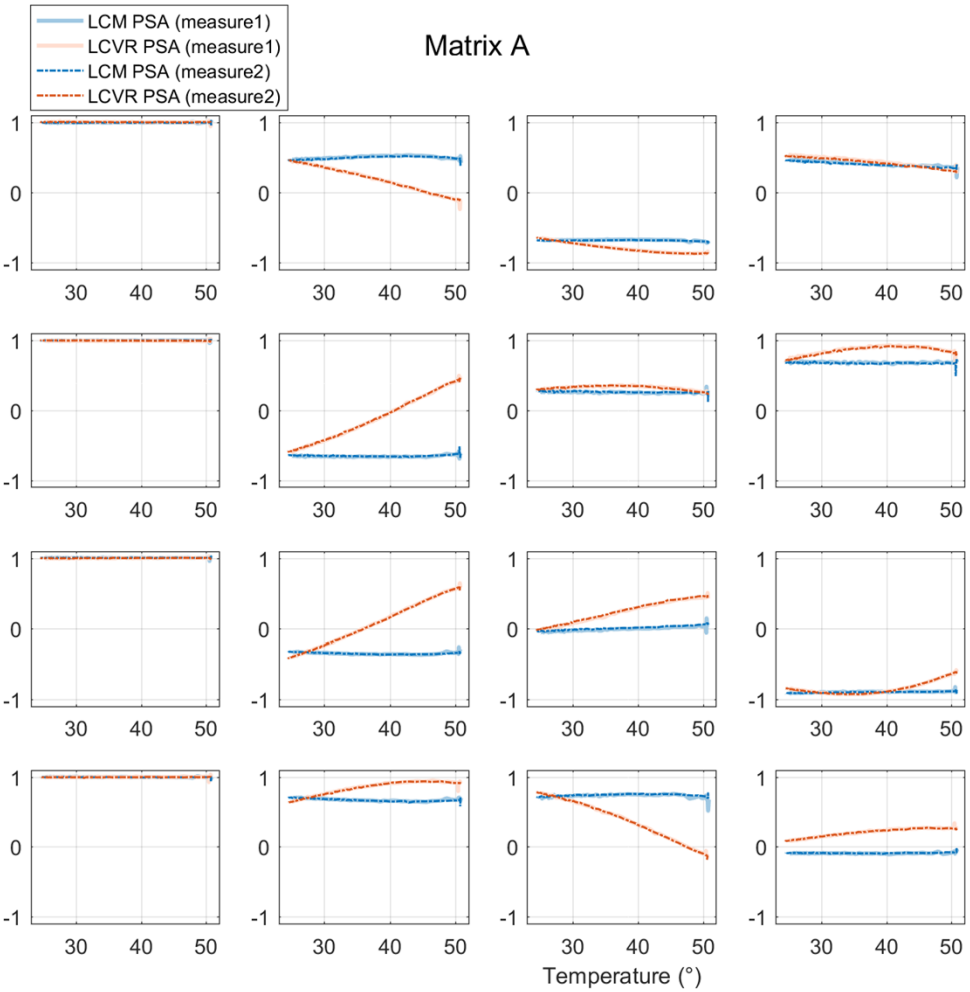

Fig. S2. Temperature dependence of the measurement matrix A of a PSA with compensation (LCM-PSA, blue lines) and without compensation (LCVR-PSA, red lines). Full lines of light color correspond to measure 1, dotted lines of darker color to measure 2.

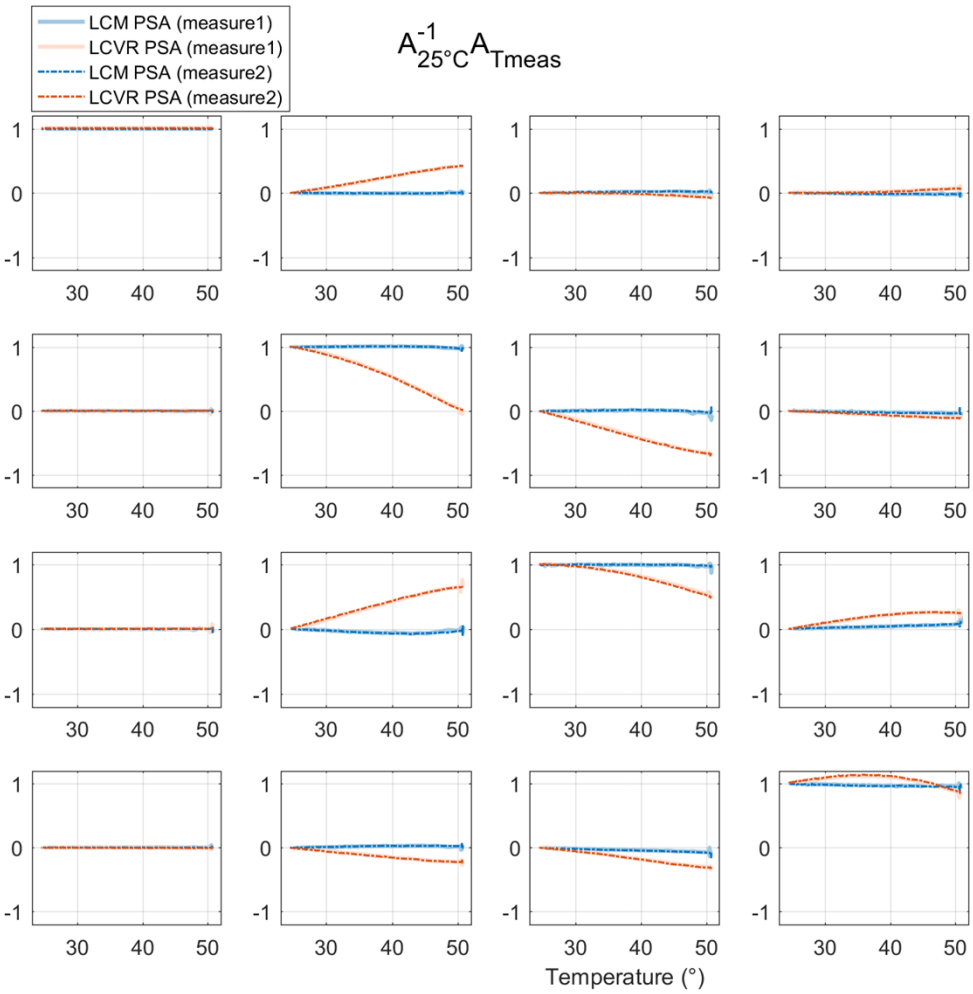

Fig. S3. Temperature dependence of the transfer matrix $A_{25°C}^{-1}A_{Tmeas}$ of a PSA with compensation (LCM-PSA, blue lines) and without compensation (LCVR-PSA, red dotted lines). Full lines of light color correspond to measure 1, dotted lines of darker color to measure 2.

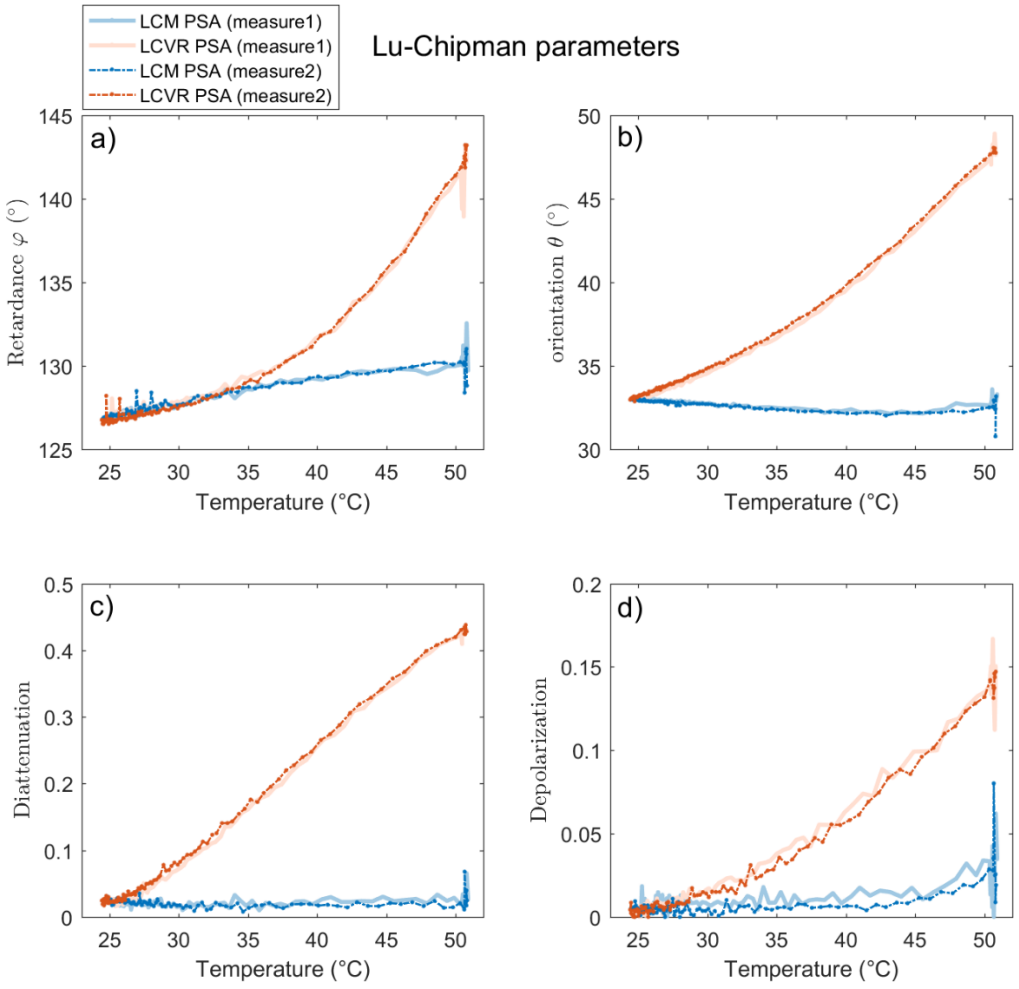

Fig. S4. Temperature dependent parameters of a waveplate obtained with compensated (LCM-PSA) and standard (LCVR-PSA) PSA in the Mueller configuration: (a) Retardance, (b) orientation of the retarder, (c) Diattenuation, and (d) Depolarization extracted from the Mueller matrix using polar decomposition