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Tesis: **"SPATIALLY RESOLVED POLARIMETRY USING CONVENTIONAL AND UNCONVENTIONAL POLARIZATION STATES"**

Resumen:

In this thesis work, some applications of the polarimetry techniques using conventional and unconventional polarized incident light are presented. The first part of this work consists on the study of the polarization properties of light scattered by a metallic cylinder. The angularly resolved Mueller matrix is determined experimentally as well as its main polarimetric parameters, which confirm that depolarization effects are not present. To our knowledge, this is the cheapest and easiest way to generate uniform horizontal and vertical linear polarizations scattered angularly. In the second part, the refractive index of a dielectric sample using highly focused radially polarized light is estimated by means of the measured Brewster's angle (according to the comments of the Reviewer of the generated article, this contribution represents a novel, reliable, and simple method). The Brewster's angle was determined by analyzing the images reflected by the sample in the optical field at the pupil plane of a high numerical aperture objective lens. Employing a high numerical aperture objective lens allows the measurement of multiple angles of incidence from 0° to 64° , around a full circle, in a single shot. The theoretical and experimental results were compared, obtaining a remarkable consistency.