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Polarização Holográfica por Birrefringência Induzida em Amostras Dopadas com Nanopartículas de Au e Ag.

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The study of the potential of vitreous nanocomposites, which through Au and Ag nanoparticles, respectively Gold and Silver) have optical properties that, according to the literature, make them capable of retaining light information in the form of polarization holograms, making it possible to use them as optical memories. Some of the samples had a remarkable behavior upon stimulation, presenting small peaks that were maintained for the first seconds of stimulation, decreasing after seconds, until the initial level. This behavior is related to the presence of nanoparticles of different sizes and shapes, with little uniformity. Samples that were not subjected to heat treatment, or were for short periods, are more likely to have nanoparticles with different shapes and sizes, which upon stimulation, can generate parallel plasmonic resonances, which compete between and prevent the main stimulation from developing. according to the stimulus. A sample that was heat treated for a period of 15 hours showed a centered plasmon resonance as predicted by the Kerr effect, which allows recording of the polarization hologram. A set of the results is shown in this work.