

Our new paper in journal of Optik

Congratulations to our new paper "Control of nonlinear refractive index of AuNPs doped with nematic liquid crystal under external electric field" by H. Mbarak, A. K. Kodeary, S. M. Hamidi, E. Mohajarani, Y. Zaatar

In the present work, the nonlinear refractive index of gold nanoparticles (NP) doped with nematic liquid crystal (NLC) is determined using Z-scan technique. The gold NPs were synthesized by laser ablation (Nd: YAG laser at 1064 nm) dispersed in liquid deionized water. This work was especially done using a close aperture placed in front of the detector to show the effect of the nematic liquid crystal (E7) on the nonlinear refractive index of the Au NPs under an external electric field. It's found experimentally, that the nonlinear refractive index of the gold nanoparticles doped with E7 can be varied by changing both the compositional percentage of gold NPs and NLC molecules. The obtained nonlinear refractive index of the samples showed that nematic liquid crystal (E7) can act as a good material for controlling the third order nonlinear coefficient due to its large nonlinear optical properties.