

Abstract Submitted
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Coherent anti-Stokes Raman scattering polarized microscopy of 3D director structures in liquid crystals¹ IVAN SMALYUKH, University of Colorado at Boulder, ALEXANDER KACHYNSKI, ANDREY KUZMIN, PARAS PRASAD, The State University of New York at Buffalo — We demonstrate labeling-free three-dimensional imaging of director structures in liquid crystals using coherent anti-Stokes Raman scattering (CARS) polarized microscopy [1]. Spatial mapping of the structures is based on the strong sensitivity of a polarized CARS signal to the orientation of selected chemical bonds of anisotropic molecules in liquid crystals. As an example, we study director structures in cholesteric, nematic, and smectic materials. We demonstrate that the CARS images of molecular orientation patterns are consistent with the structure models and with the respective computer-simulated CARS textures.

[1]. A.V. Kachynski, A.N. Kuzmin, P.N. Prasad, and I.I. Smalyukh, *Appl. Phys. Lett.* 91, 151905 (2007).

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