Abstract Submitted
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Three-dimensional imaging of chemical bond orientation in liquid crystals by coherent anti-Stokes Raman scattering microscopy.[1] OLEG D. LAVRENTOVICH, HEUNG-SHIK PARK, Liquid Crystal Institute and Chemical Physics Program, Kent State University, Kent, OH 44242, BRIAN G. SAAR, X. SUNNEY XIE, Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA 02138 — Coherent anti-Stokes Raman scattering (CARS) microscopy is used to provide three-dimensional chemical maps of liquid crystalline (LC) samples without the use of external labels. CARS is a polarization-sensitive optical imaging technique that derives contrast from Raman-active molecular vibrations in the sample. Compared to other three-dimensional imaging techniques, CARS offers the most rapid chemical characterization available without the use of external dyes or contrast agents. Examples that illustrate the applicability of CARS microscopy to LCs include textures and defects in nematic and smectic LC, electric Frederiks transition.

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Oleg D. Lavrentovich
Liquid Crystal Institute, Kent State University, Kent, OH 44242

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