Abstract Submitted
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Aggregation in Two Dye Systems That Form Chromonic Liquid Crystals[1] PETER J. COLLINGS[2], VIVA R. HOROWITZ[3], MICHELLE R. TOMASIK, Department of Physics & Astronomy, Swarthmore College, Swarthmore, PA 19081 — X-ray scattering and various optical techniques are utilized to study the aggregation process and aggregate structure for two water-soluble dyes that form chromonic liquid crystal phases. The x-ray measurements indicate that the molecules stack in columns with a cross-section approximately equal to the area of a single molecule. The optical measurements point to an aggregation process that occurs at all concentrations, with the distribution of aggregate size shifting to larger and larger aggregates as the concentration is increased. A simple theory based on the law of mass action and an isodesmic aggregation process is in excellent agreement with the experimental data, yielding a value for the "bond energy" between the molecules in an aggregate.

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