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Electro-optic Kerr effect in the study of mixtures of oppositely charged colloids. The case of polymer-surfactant mixtures in aqueous solutions

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ABSTRACT.

In this review I highlight a very sensitive experimental technique for the study of polymer-surfactant complexation: *The electro-optic Kerr effect*. This review does not intend to be exhaustive in covering the Kerr Effect nor polymer-surfactant systems, instead it aims to call attention to an experimental technique that, even if applied in a qualitative manner, could give very rich and unique information about the structures and aggregation processes occurring in mixtures of oppositely charged colloids. The usefulness of electric birefringence experiments in the study of such systems is illustrated by selected results from literature in hope of stimulating the realization of more birefringence experiments on similar systems. This review is mainly aimed at, but not restricted to, researchers working in polyelectrolyte-surfactant mixtures in aqueous solutions, Kerr effect is a powerful experimental tool that could be used in the study of many systems in diverse areas of colloidal physics.

Keywords: electric birefringence; electro-optic Kerr effect; polymer-surfactant complexes; polyelectrolytes; counterions polarization mechanism.

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