

Dynamics of phase transitions in lyotropic liquid crystal based on *N*-dodecyl-*N*-(2-hydroxyethyl)-*N,N*-dimethylammonium bromide

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Abstract

Series of mesomorphic phase transitions (hexagonal → bicontinuous cubic → lamellar) of *N*-dodecyl-*N*-(2-hydroxyethyl)-*N,N*-dimethylammonium bromide have been observed by polarizing optical microscopy using spontaneous water evaporation from a droplet of dilute solution of mesogen in water. The same technique of spontaneous water evaporation has been used in X-ray diffractometry and Raman experiments. The conformational changes of the hydrocarbon tail during phase transitions were shown. Structural peculiarities of the lamellar lyotropic liquid crystal phase were defined.