

# Nanooptics and photonics

## Investigating of the association of surfactants by dynamic light scattering

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Corona discharge and VUV-radiation are considered as alternative methods of waters purification from organic toxicants, including surface-active substances (SAS). These methods are related to non-reagent methods of purification. Oxidation of toxicants occurs by active oxygen particles, the most active of which are OH-radicals. Since the oxidation processes occurred in the upper thin layer of the liquid, the efficiency of SAS destruction has to depend on their surface properties, which in turn depend on the association in aqueous solution.

The purpose of this work was investigated association of alkylpyridinium compounds (cationic SAS) and sodium dodecyl sulfate (anionic SAS) in a wide concentration interval using dynamic (Zetasize, Malvern Instruments, with a He-Ne laser ( $\lambda = 633$  nm, maximum power 4 mW) and electrophoretic light scattering methods.

The dimensions of the optical inhomogeneities of the studied SAS solutions are experimentally established. The concentration dependences of the optical inhomogeneities, electrical conductivity,  $\xi$ -potential, surface tension, and destruction degree of the SAS obtained by the investigated methods have correlation with each other, and confirming the relationship between the degree of destruction s and their association in aqueous solution.