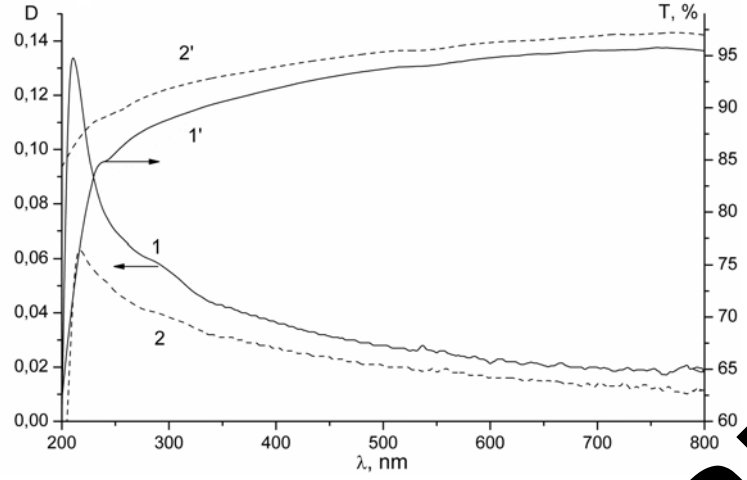

FIG. 6. Absorption $D(1,2)$ and transmittance $T(1',2')$ spectra of graphene oxide LB films, deposited according to Y-type $(1,1')$ and Z-type $(2,2')$ transfer

particles, it was shown that sonication for 30 min leads to a reduction in the size of graphene oxide particles. Further ultrasonic treatment of the solutions had virtually no effect on the average size of the particles and the distribution of particle sizes. Most stable dispersions of graphene oxide were prepared in THF.

The physicochemical properties of graphene oxide monolayers at the water – air interface were studied. From the compression isotherms of monolayers, it was found that for the pressures in the range of 0 to 2 $mN \cdot m^{-1}$ monolayer is predominantly in a gaseous state. With further compression of the monolayer, the particles approach and the film becomes "liquid". Spreading a greater volume of graphene oxide onto the surface of the subphase results in a denser particle packing within the monolayer. For all monolayers, no collapse was registered, despite the rather large amount of the spread solution.

In the absorption spectra of graphene oxide LB films, a broad band was found in the ultraviolet and visible regions of the spectrum with a maximum at 230 nm. The optical density of the film obtained according to the Y-type transfer is greater than the optical density of the film prepared according to the Z-type transfer. The transparency of the films is more than 90 % in the visible wavelength range (from 400 to 800 nm).

SEM-images show that the films have an island structure. In the pictures, the individual particles of graphene oxide are clearly distinguished. The films obtained according to the Y-type transfer were more uniform than films prepared according to than Z-type transfer, which makes them more promising in terms of their use as conductive coatings.

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