Physical studies of the Langmuir-Blodgett (LB) films of the $C_{60}F_{18}$

N.I. Denisenko[a], S.G. Yudin[b], O.V. Boltalina[a], V.V. Kolesov[c]

[a]*Chemistry Department, Moscow State University, 119899 Moscow, Russia*

[b]*Institute of Crystallography RAN, 117333 Moscow, Russia*

[c]*Institute of Radio Engineering and Electronics RAN, 101999 Moscow, Russia*

The Langmuir-Blodgett (LB) technique allows one to make ultra-thin films, use of C_{60} as LB material was described elsewhere [1,2]. Recently, the formation of the multilayers of C_{60} and the molecular aggregation of C_{60} due to its intrinsic lack of hydrophilic groups was observed [3,4]. It can be largely reduced by introduction of hydrophilic groups, such as halogen atoms. However physical properties of the thin films of halogenated fullerenes have not been fully investigated. We applied the LB technique to one of the most interesting fluorofullerenes $C_{60}F_{18}$ [5]. The pressure-area isotherm shows that $C_{60}F_{18}$ could form stable monolayers at the air-water interface. Dielectric, photoelectric properties, Stark effect and the absorption spectra of the deposited LB films were investigated, along with the STM study.

REFERENECES

1. Y.S. Obeng, A.J. Bard, *Am.Chem.Soc*. **1991**, 113, 6279-6280
2. Williams, G., Pearson, C., Bryce, M.R. and Petty, M.C., *Thin Solid Films* **1992**, 209, 150
3. Toyoko Imae and Yoshito Ikeo, *Supramolecular Science* 5, **1998**, 61-65
4. Qiang Xia, Kong-Zhang Yang, *Material Science and Engineering C*, 10, **1999**, 91-95
5. Boltalina, O.V., Markov, V.Yu., Taylor, R. And Waugh, M.P., *Chem. Commun*. **1996** , 2 , 2551