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Neutron Reflectivity Measurement for Polymer Dynamics near Graphene Oxide Monolayers. JASEUNG KOO, Korea Atomic Energy Research Institute — We investigated the diffusion dynamics of polymer chains confined between graphene oxide layers using neutron reflectivity (NR). The bilayers of polymethylmetacrylate (PMMA)/ deuterated PMMA (d-PMMA) films and polystyrene (PS)/d-PS films with various film thickness sandwiched between Langmuir-Blodgett (LB) monolayers of graphene oxide (GO) were prepared. From the NR results, we found that PMMA diffusion dynamics was reduced near the GO surface while the PS diffusion was not significantly changed. This is due to the different strength of GO-polymer interaction. In this talk, these diffusion results will be compared with dewetting dynamics of polymer thin films on the GO monolayers. This has given us the basis for development of graphene-based nanoelectronics with high efficiency, such as heterojunction devices for polymer photovoltaic (OPV) applications.

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