

681st ASRC Seminar

Date: 15:00 - 16:30 Tuesday, July 11

Location: 103 Meeting Room, ASRC Bldg.

Speaker: Dr. Shinya Yoshimoto
(The University of Tokyo)

Title: Electronic Transport in Monolayer Organic Semiconductors Studied by Liquid Metal Gallium Probes

Abstract: Interfaces play an important role in overall performance of organic field effect transistors (OFETs). The source electrode/organic semiconductor interface influences carrier injection, and the gate insulator/organic semiconductor interface influences carrier accumulation and transport. Independently-driven four-probe system is one of the method to separate these influences on OFETs, however, it is difficult to make electrical contact without braking the OFETs by using scanning tunneling microscope tips. By the use of liquid metal gallium indium (GaIn) probes, we have succeeded to measure electronic transport property in monolayer pentacene OFET. We found that carrier mobility in monolayer pentacene is much smaller than multilayer pentacene, and it is highly sensitive to gas exposure. Details of the GaIn probe fabrication and the independently-driven four-probe method will be reviewed.

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