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[13p-A37-1~13]4.6 Nanocarbon and 2D Materials

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Tue. Sep 13, 2016 1:15 PM - 5:45 PM A37 (306-307)

△ : Presentation by Applicant for JSAP Young Scientists Presentation Award

▲ : English Presentation

▼ : Both of Above

No Mark : None of Above

2:15 PM - 2:45 PM

▲[13p-A37-4][JSAP-OSA Joint Symposia 2016 Invited Talk] Electron energy-loss spectroscopy to probe the local optical properties of low-dimensional materials

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Keywords:EELS, absorption spectroscopy, 2D materials

Recent development of analytical transmission electron microscopes (TEM) with a monochromated gun allows us to obtain the electron energy-loss spectra (EELS) in the range of valence region with a few tens of meV energy resolution even when an atomic size probe is used. If the specimen is an "surface object", the EELS is fully comparable to the optical spectroscopy. Therefore the correlation of the detailed atomic structure of matter with its optical spectrum is now made possible in TEM. We show here an example of spatially resolved exciton mapping across an interface between single-layered MoS_2 and $MoSe_2$ [1]. Optical spectroscopy of individual carbon nanotubes with the known chirarity will be also shown [2].

[1] L. Tizei et al., Phys. Rev. Lett., 114 (2015) 107601

[2] R. Senga et al., NanoLett. (2016) in press DOI: 10.1021/acs.nanolett.6b00825

[3] This work is supported by JST-CREST and Research Acceleration programs.