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発表内容：

Semiconductor nanoparticles are presently considered for optical applications such as a laser[1], biomedical imaging[2] and solar-cell [3]. For designing of these optical devices, it is important to know optical constants of the films composed of the semiconductor nanoparticles.

In this study, we have investigated optical properties of the films composed of ZnSe- or ZnS-nanoparticles by spectroscopic ellipsometry. The ellipsometric measurements have been performed to the films comprising both ZnSe- and ZnS-nanoparticles deposited by Layer-by-Layer method[4] on glass substrates. Phase modulated spectroscopic ellipsometry have then been applied to the resultant samples and Is and Ic spectra have been obtained in a wide range (1.0-6.0 eV) of photon energies.

We successfully obtained the dielectric function spectra, mixing ratio of the nanoparticles. Figure 1(a) and (b) shows the real and imaginary parts of the dielectric function spectra of the films composed of ZnSe- or ZnS-nanoparticles by mixing ratio dependence of solution volume. It is found that precise control of the optical constant can be performed by using the mixing ratio of the nanoparticles.

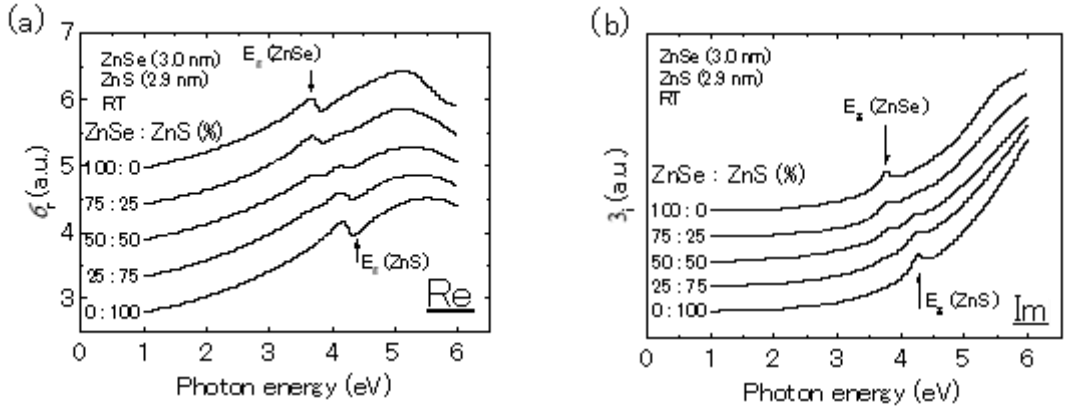

Fig.1 Imaginary (a) and real (b) dielectric function of spectra of the films composed of nc-ZnS and nc-ZnSe.

会議参加の感想：

「The 8th International Summer Course on “Nano Material Discovery”」に参加し、ナノマテリアルに関する研究成果の発表を行った。また、他グループの、研究者との議論も行い、研究者のテーマと関連した話題について情報収集も行った。特に、半導体ナノ粒子に関する研究や、ナノ物質測定に関する実験的検討、実験報告などが行われ、各講演者との議論により今後の研究に関するヒントを得ることができた。