



# 2012年度 物質生命理工学科コロキウム

上智大学 理工学部 物質生命理工学科 主催 (理工学部 共催)

## ***Recent photoelectron spectroscopy results from University College Dublin***

**Dr. Emma Sokell**

**(University College Dublin, Ireland)**

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11号館 221号室



Photoelectron spectroscopy involves the measurement of kinetic energies of electrons emitted when the target is illuminated. The technique was developed using fixed energy photon sources. With the advent of synchrotron radiation sources, which produce relatively intense photon beams of tunable energies with well-characterized polarization, the range of experiments was dramatically increased. For example, resonant processes, occurring at specific photon energies, could be investigated and angular distribution of photoelectrons, with respect to the polarization vector of the photon beam, measured.

Photoelectron spectroscopy of the alkali-earth elements is interesting because of their electronic configurations. Double photoionization of these elements results in ground-state, doubly-charged ions with rare-gas electronic configurations. Single and double photoionization results for magnesium and strontium, obtained using two different spectrometers at synchrotron sources, will be presented and discussed.

Additionally, high resolution, angle-resolved, photoelectron spectra of molecular D<sub>2</sub> and H<sub>2</sub> will be discussed. Ro-vibrational, autoionization of Rydberg states dominates the photoionization of both H<sub>2</sub> and D<sub>2</sub> just above their ionization thresholds. This process, in which energy from the nuclear core of the molecule is used to ionize a resonantly-excited electron, requires a treatment beyond the Born-Oppenheimer approximation and these detailed experimental results should motivate theoretical developments.

学外の方の聴講歓迎・申込不要・参加無料

問い合わせ：東 善郎 y-azuma[at]sophia.ac.jp