CAMT Seminar

"Multifunctional Amine Plasma Polymers as Bioactive Surfaces"

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Date: 24 August, 2022 (Wed) 11:00-12:00
Location: Main Conference Room (1st floor), Bldg. A12
Center for Atomic and Molecular Technologies (CAMT)
(A12 棟 1 階会議室)

Abstract

In PECVD (plasma polymerization being a part of it), we have many knobs: reactants (gas feed) and discharge characteristics (type of discharge, substrate potential, pressure, power, pulsing). Comparison of the film properties for one of the usual varied parameters such as discharge power can be difficult. Considering the most used discharge, the low-pressure RF CCP, the questions remain about the role of ions, their energy, density, and chemistry in the particular experiment. The comparison among the experimental set-ups is hindered by the varied substrate potential and the pressure (collisional / collisionless regimes) or not well-defined transitions between the discharge modes (CCP/ICP or α/γ of CCP). In my talk, I will present our results on plasma polymerization of cyclopropylamine (CPA) mixed with Ar in three different CCP reactor set-ups and compare them with other experiments to prepare amine plasma polymers. I will show the variations of the film chemistry (nitrogen percentage, NH2 groups, nitriles etc.) and discuss the question of different observed trends with increasing discharge power. Based on a usual film characterization (e. g., XPS, FTIR), without testing a specific function, it is hard to say what films are the best for the intended application. Thus, I will try to answer the question if we optimize the film properties to the right values.

(Host: Satoshi Hamaguchi Ext：7913)