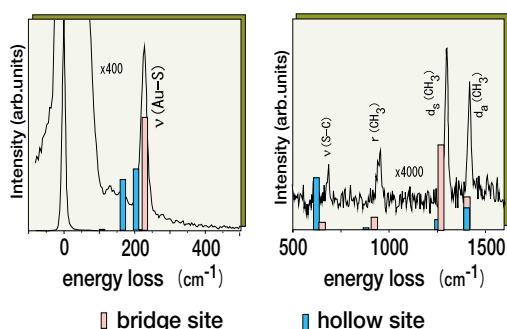


# The Structure of Self-Assembled Monolayers

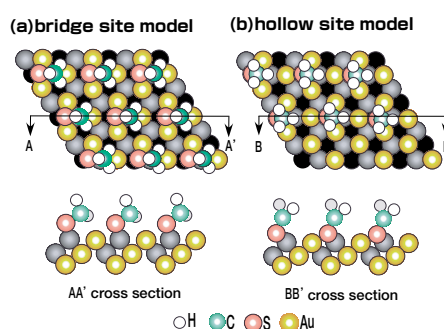
Determination of the structure of the self-assembled monolayer films has been the target of many researchers, however, many attempts have been failed because of the lack of effective analytical tools. The structure of self-assembled monolayer films has been determined, for the first time, by means of temperature programmed desorption (TPD), high resolution electron energy loss spectroscopy (HREELS) and density functional

calculation (DFT). The location of the sulfur atom of the self-assembled monolayer films on the Au(111) surface is uniquely determined to be the bridge site although the hollow site has long been believed. The determination of the fundamental structure of the self-assembled monolayers accelerate the application of the self-assembled monolayer films to variety of fields.

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The Au(111) surface is the closed packed structure which shows 6-fold symmetry as shown in figure 2. The adsorption site between three gold atoms is the hollow site and the adsorption site between two gold atoms is the bridge site

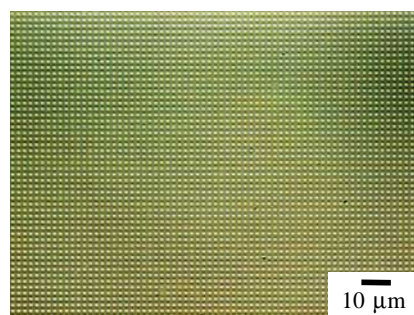


Gray colored balls in the cross section is gold atoms and hydrogen atoms which locate one atomic layer behind the cross section plane

# Laser-Induced Materials Processing of Silica Glass

## - Surface Microfabrication of 1 Micron-Sized Grid Array -

Laser-induced backside wet etching of fused silica plates using aqueous solutions of a naphthalene derivative was performed upon KrF excimer laser irradiation at 248 nm. Well-defined line-and-space and grid micropatterns at 1 μm scale were fabricated without debris and microcracks formation around the etched area.



Confocal scanning laser micrograph of a grid array of 1 μm × 1 μm holes on the surface of a fused silica plate

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