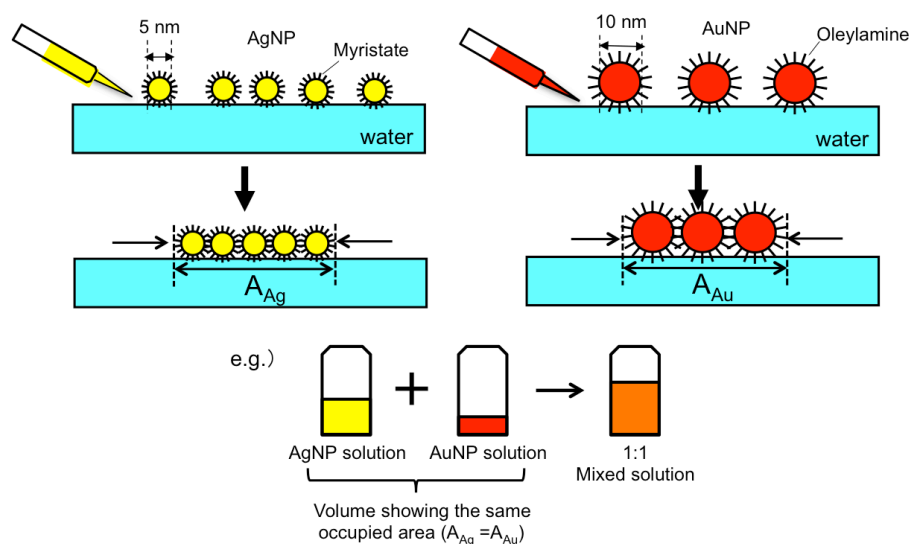


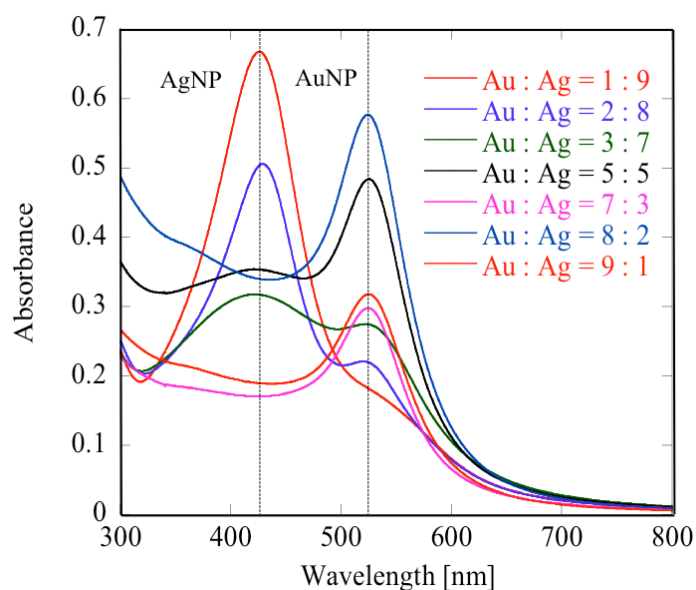
## Supporting Information

### Characteristics of localized surface plasmons excited on mixed monolayers composed of self-assembled Ag and Au nanoparticles

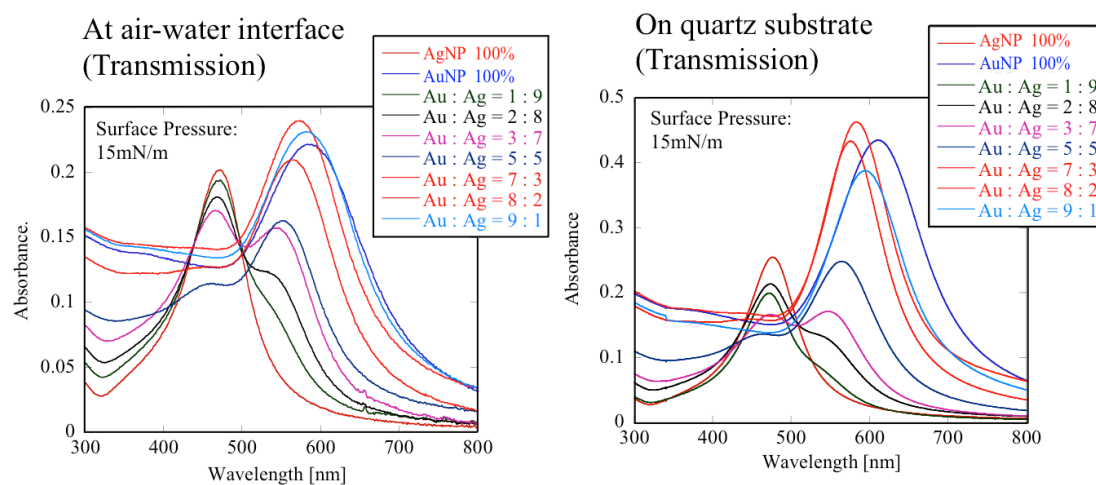
*Daisuke Tanaka, Keisuke Imazu, Jinwoo Sung, Cheolmin Park, Koichi Okamoto, and Kaoru Tamada\**



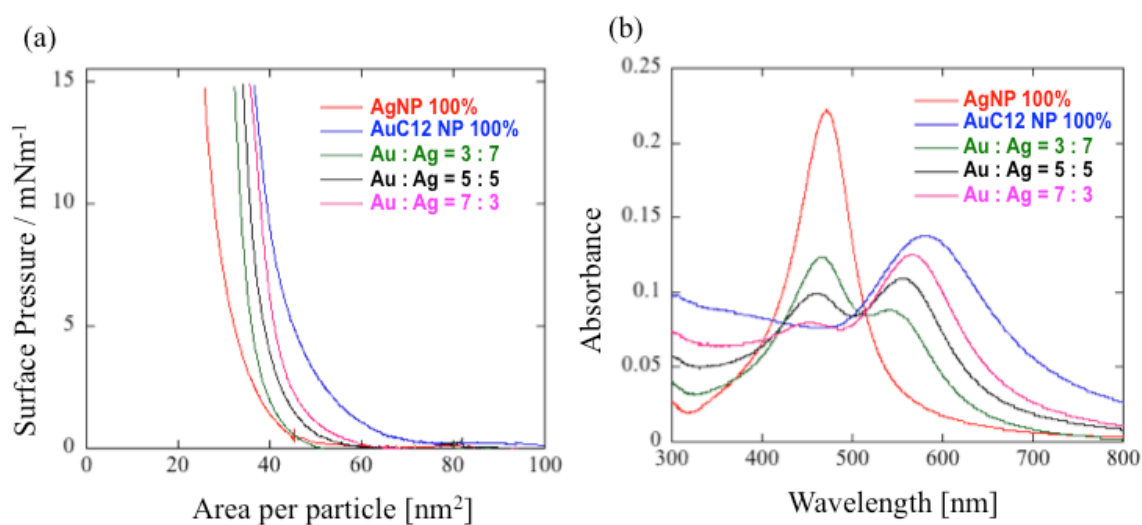
**Figure S1.** Fabrication of mixed AgNP and AuNP 2D sheets



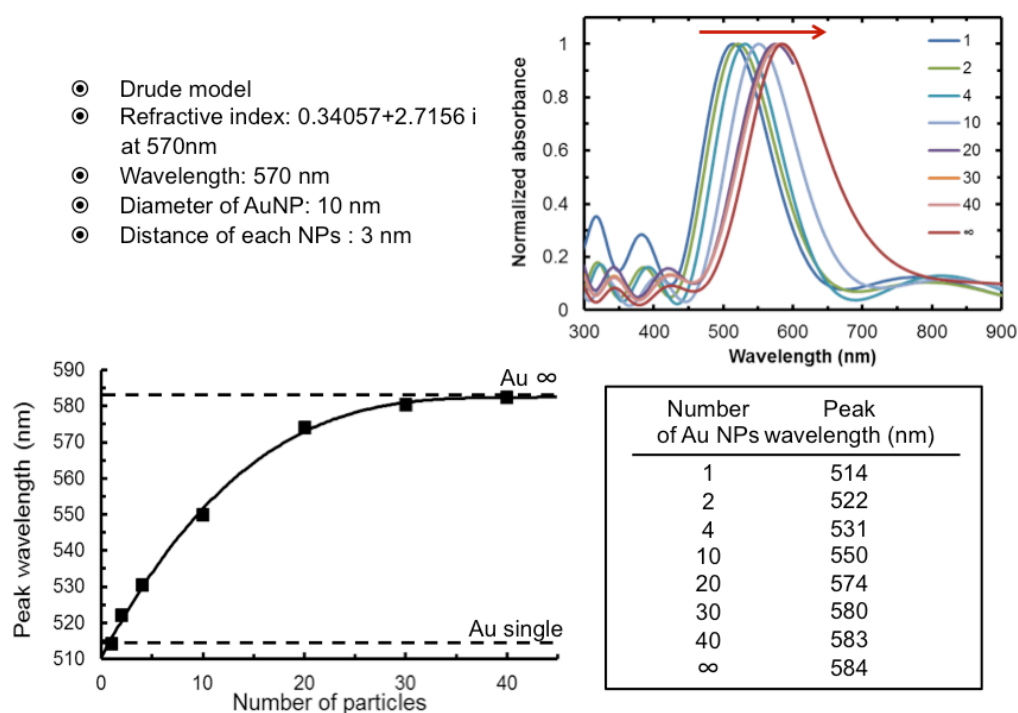
**Figure S2.** Absorption spectra of 5-nm AgNP and 10-nm AuNP mixed solutions in toluene, which are diluted 10 times from the original solutions for spreading. Because the mixing ratio is defined by the occupied area when these are spread at the air-water interface, the LSPR peak intensities do not simply agree with these ratios. We confirmed that the two particles are stably mixed without aggregation.



**Figure S3.** Absorption spectra of 5-nm AgNP and 10-nm AuNP mixed films at air-water interface (a) and on quartz substrate (b) without normalization.



**Figure S4.**  $\Pi$ -A curves of 5-nm AgNP and 5-nm AuNP mixed monolayers (a), and their absorption spectra on quartz without normalization (b).



**Figure S5.** Correlation between LSPR absorption spectra and 2D arrays composed of AuNP (10 nm in diameter and 3 nm gap) with finite numbers of particles by FDTD simulation. The calculation result of the 2D sheet reached the saturated value of red-shift when the number of particles on the line was 40.