



TATSUMA LAB.

[Nanoscale Photochemistry]

Center for Photonics Electronics Convergence

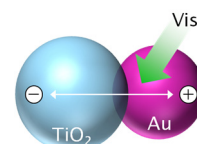
<http://www.iis.u-tokyo.ac.jp/~tatsuma/>

Department of Applied Chemistry
Department of Advanced
Interdisciplinary Studies

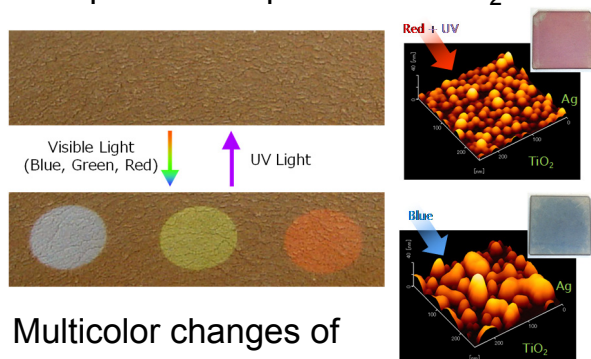
Advanced Electrochemical Devices

Nanoparticle Photoelectrochemistry

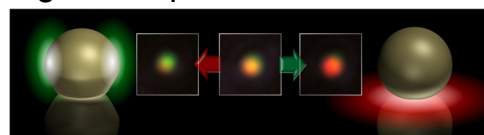
We found that plasmon-induced charge separation is possible at the metal nanoparticle-metal oxide interface. We have applied it to multicolor photochromism, photovoltaic systems, photocatalysis, chemical and biosensing, and photoactuation of polymer gels. We also develop photofunctional materials with metal clusters and semiconductor nanodots.



Multicolor photochromism of silver nanoparticles deposited on TiO₂.

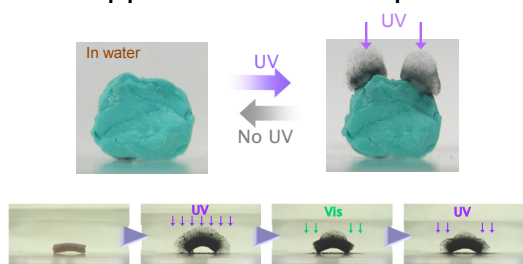


Multicolor changes of single nanoparticles.

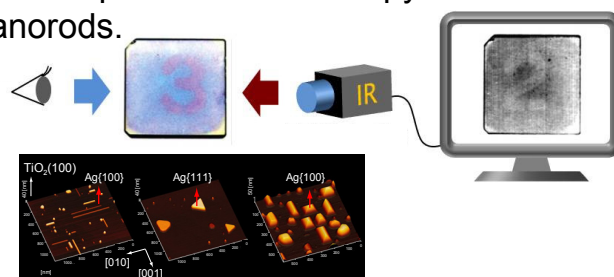


Photovoltaics and photocatalysis of gold nanoparticles deposited on TiO₂.

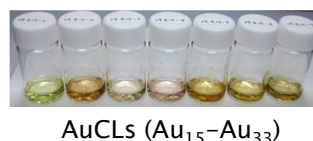
Photoactuation of polymer gels loaded with copper or silver nanoparticles.



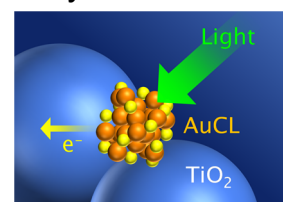
Infrared photochromism of pyramidal silver nanorods.



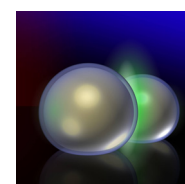
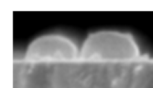
Photovoltaics and photocatalysis with metal clusters such as Au₂₅.



AuCLs (Au₁₅-Au₃₃)



Enhancement of photo-absorption of nanodots by metal nanoparticles.



Visible light-driven photocatalysts with energy storage abilities.

