



Showcasing research from Professor Konishi's laboratory,  
Graduate School of Environmental Science, Hokkaido  
University, Sapporo, Japan.

Controlled nanocrystallization of gold nanoclusters within  
surfactant envelopes: enhancing aggregation-induced emission  
in solution

Herein we demonstrate the unprecedented solution synthesis  
of molecular single nanocrystals of Au<sub>8</sub> nanocluster by using  
surfactant-based nano-envelopes. Upon simple sonication in  
solution, the sphere-shaped amorphous nano-aggregates of  
the cluster coated by the surfactants are smoothly converted  
into rhombic single nanocrystals. The transformation into the  
single nanocrystals occurs exclusively without further growth  
or agglomeration, implying the crystallization within the  
surfactant nano-envelopes. The amorphous-to-nanocrystalline  
transition causes notable enhancement of the AIE-type  
photoluminescence of the cluster, providing a clear example of  
crystallization-induced emission enhancement in solution.

As featured in:



See Yasuhiro Ishida,  
Katsuaki Konishi *et al.*,  
*Chem. Sci.*, 2024, **15**, 11775.