

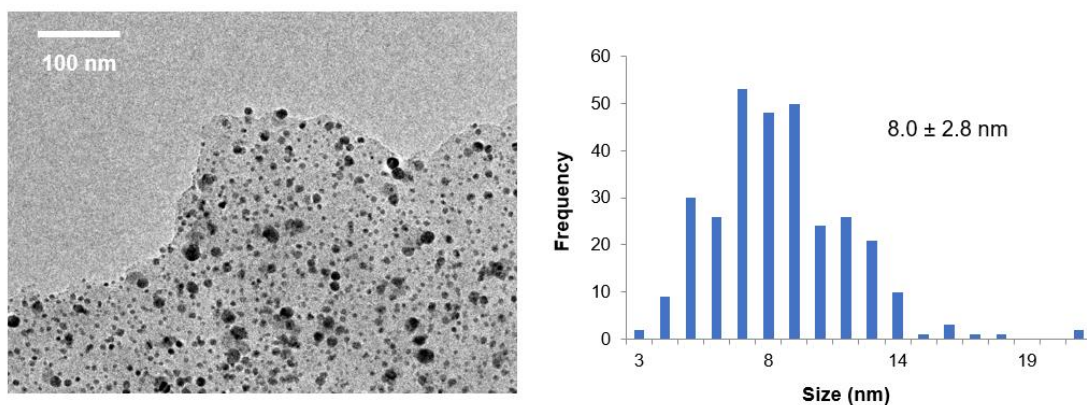
## Preparation of silver nanoparticles stabilized by fulleranol

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Fullerenols (polyhydroxylated fullerene) are currently used in several scientific and industrial fields<sup>1</sup>. Recently, our group have reported that fullerenols ( $C_{60}(OH)_n$ ) ( $n=12, 36$ ) work as a surfactant for metal nanoparticles (NPs), such as  $Au:C_{60}(OH)_n$  and  $Pt:C_{60}(OH)_n$ ,<sup>2,3</sup> to form a colloidal dispersion in water.  $Au:C_{60}(OH)_n$  colloids exhibited a high catalytic activity toward the reduction of 4-nitrophenol while  $Pt:C_{60}(OH)_{12}$  implied high activity on electrocatalyst after pyrolyzed at 300 °C. In this study, we report the preparation of silver nanoparticles stabilized by  $C_{60}(OH)_{12}$  ( $Ag:C_{60}(OH)_{12}$ ).

$Ag:C_{60}(OH)_{12}$  was prepared through a liquid phase reduction method;  $NaBH_4$  was added to the mixture of  $C_{60}(OH)_{12}$  and  $AgNO_3$  in water to afford a brownish dispersion of  $Ag:C_{60}(OH)_{12}$ . The generation of nanoparticles was confirmed by TEM and XAS experiments to find that the Ag NPs with the particle size of approximately 8 nm was formed (Figure 1). In one hand, the peak height of  $Ag:C_{60}(OH)_{12}$  at Ag K-edge X-ray absorption near edge structure (XANES) was different with those of Ag foil and  $Ag_2O$ , suggesting the generation of  $Ag^0$  NPs. The catalytic activities of  $Ag:C_{60}(OH)_{12}$  will also be discussed in the presentation.



**Figure 1.** TEM data of  $Ag:C_{60}(OH)_{12}$

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