



**Showcasing research from Professor Ren-Hua Jin's laboratory,  
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Generation of sub-5 nm AuNPs in the special space of the loop-cluster corona of a polymer vesicle: preparation and its unique catalytic performance in the reduction of 4-nitrophenol

We found that a special polymer vesicle covered by a polyethyleneimine loop-cluster corona could encapsulate sub-5 nm gold nanoparticles on the outer coronal layer to form a very stable vesicular hybrid keeping a spherical morphology even in the dried state. This hybrid exhibited excellent catalytic activity by sudden reduction of nitrophenols, after passing remarkable induction times which is caused by oxygen adsorbed on the gold nanoparticles. Interestingly, the hybrid catalyst could be recycled in the continuous reduction by adding reactants repeatedly, while the small gold nanoparticles encapsulated in the vesicle remained without leaching or damage.

**As featured in:**



See Ren-Hua Jin *et al.*,  
*Nanoscale Adv.*, 2023, 5, 2199.