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## Triazole stabilized transition metal nanoparticles for 4-nitrophenol reduction

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In the past few decades, a variety of ligands have been synthesized and used to stabilize gold nanoparticles (AuNPs) either in organic solvents or in water. The surface properties, including ligand type, binding force of Au with other atoms, as well as the ligand coverage of AuNPs control the solubility, stability and applications of AuNPs. For example, in thiolate-stabilized AuNPs, covalent bonding of Au-S contributes to the passivation of the surface of thiolate-stabilized AuNPs and makes AuNPs stable in solid state, whereas citrate stabilized AuNPs were usually prepared in aqueous solution due to themulti-package of ionic species on the AuNPs surface.2In addition, the influence of surface properties to AuNPs was also observed in several examples on the coordination-induced stabilization of AuNPs with nitrogen donors, particularly, dendritic supramolecules. PAMAM dendrimers shows significant template effects in the formation of NPs in various solvents. Copper-catalyzed azide alkyne (CuAAC) "click" chemistry has generated super molecules such as PEG-terminated dendrimers and polymers also stabilizing AuNPs in aqueous solution. Besides, many other nitrogen ligandssuch as imidazoles, pyridines and others have also been utilized for the stabilization of AuNPs. In our previous reports, it is found that the copper-catalyzed azide alkyne (CuAAC) cyclyoaddition i.e. "Click" reaction could yield triazole functionalized PEG (triazole-PEG) to stabilize AuNPs by triazole-AuNPs (trz-AuNPs) bond in aqueous solution, and these AuNPs exhibited an excellent catalytic activity towards the 4-NP reduction. In order to extend the investigation of trz-MNPs for catalysis, we now report the full syntheses and characterizations on a group of triazole-PEG stabilized MNPs, then optimize and evaluate their catalytic reactivity towards the 4-NP reduction.

## **Biography**

**MICS** 

Pengxiang Zhao was born in Chengdu, China. He completed his PhD in 2012 in the group of Prof. Didier Astruc at the University of Bordeaux on the application of gold nanoparticles for docetaxel delivery. Then he did his post-doc at Hongkong Polytechnic University with Prof. Kwok-Yin Wong in 2013. He is currently an independent researcher at the Science and Technology on Surface Physics and Chemistry Laboratory at Mianyang, Sichuan, China. Now, he is leading a group there and his research interests concern nanomaterials and metal catalysis.

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