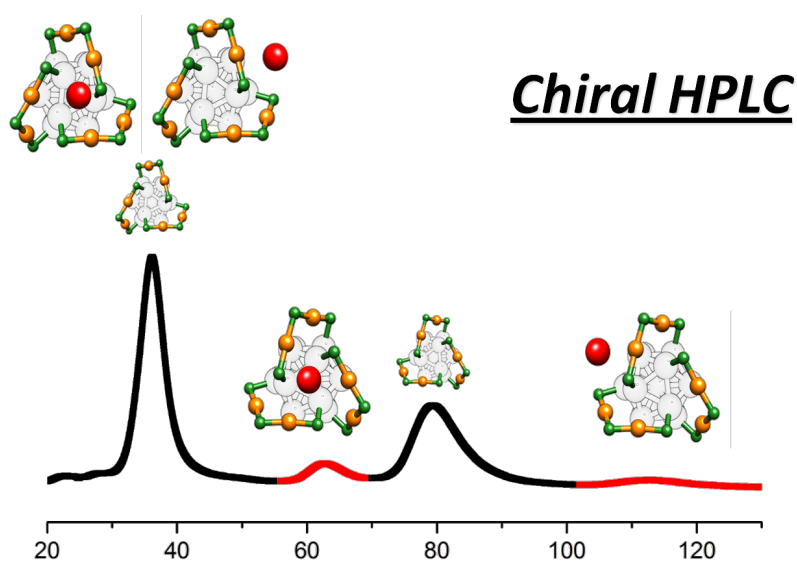


Au₃₈Cu₁(SC₂H₄Ph)₂₄ Nanoclusters: Synthesis, Enantioseparation and LuminescenceR. Kazan¹, B. Zhang¹, T. Bürgi^{1*}¹Department of Physical Chemistry, University of Geneva, Switzerland

Gold alloy nanoparticles have recently triggered much research interest for their various applications in several fields such as catalysis and imaging. [1] Nonetheless, preparing alloy nanoparticles with atomic monodispersity has long been a major challenge, and until now only few have been attained with atomic precision and molecular purity. [2] In this study, a CuAu₃₈ bimetallic nanocluster was synthesized by adding a single copper atom to the Au₃₈(2-PET)₂₄ nanocluster. The absence of Cu_xAu₃₈(2-PET)₂₄ doped species was demonstrated by MALDI-TOF mass spectrometry. A separation of bimetallic clusters was attained for the first time where isomers of the E2 enantiomer of the Au₃₈Cu₁ adduct were successfully isolated from their parent cluster using chiral HPLC. The CD of the isolated isomers revealed a change in their electronic structure upon copper addition. The luminescence of the Au₃₈Cu₁ adduct is significantly enhanced in comparison with the parent Au₃₈ nanocluster. The stability of the newly formed adduct is strongly dependent on the coexistence of the Au₃₈ nanoclusters.



[1] C. Yao, J. Chen, M. B. Li, L. Liu, J. Yang and Z. Wu, *Nano Letters*, **2015**, 15, 1281-1287.

[2] S. Wang, Y. Song, S. Jin, X. Liu, J. Zhang, Y. Pei, X. Meng, M. Chen, P. Li and M. Zhu, *Journal of American Chemical Society*, **2015**, 137, 4018-4021.