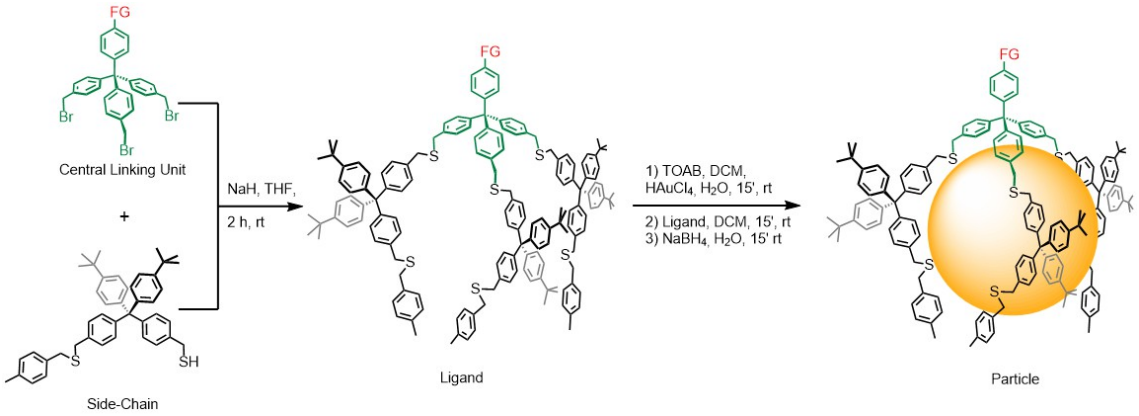
Gold Nanoparticles Reaching out for Molecular Electronics via Tailor-Made Ligands

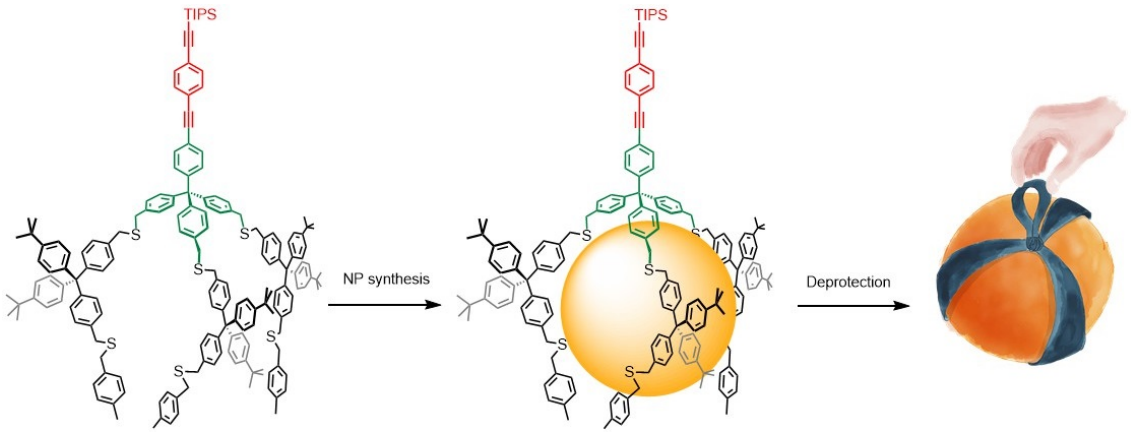
E. H. Peters[1], M. Lehmann[1], M. Mayor[1]*

[1]University of Basel

Due to their unique properties [1], gold nanoparticles (Au NPs) are of major interest In the growing field of molecular electronics [2,3]. A novel, central tripodal subunit has been synthesized, as well as a range of easily attachable, thioether-based side-chain elongations, enabling dendritic coverage of Au NPs. By variation of the side-chain length, monofunctionalized Au NPs exhibiting long-term bench stability and tolerance towards heat stress up to 110 °C were found. Further, the central linking unit offers a perpendicular free site for the introduction of a functional group.



Further work will comprise the introduction of an electronically addressable moiety at the central linking unit, as well as cage-like ligand architectures based on our existing molecules.



[1] G. Schmid and U. Simon, *Chem. Commun.,* **2005,** 6, 697–710.
[2] Günter Schmid, Monika Bäumle, Marcus Geerkens, Ingo Heim, Christoph Osemann and Thomas Sawitowski, *Chem. Soc. Rev.,* **1999,** 28, 179–185.
[3] Torsten Peterle, Annika Leifert, Jan Timper, Alla Sologubenko, Ulrich Simon and Marcel Mayor, *Chem. Commun.,* **2008,** 28, 3438-3440