"CAPTURING" THE GOLDEN SNITCH: REACTIVE GOLD(III) SPECIES AS MECHANISTIC TOOLS FOR REACTION DESIGN

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Identifying the structure and electronic nature of key reactive intermediates in catalysis is essential for the development of new synthetic methods. Despite their widespread application in catalysis, material science and biomedical research, the development of gold(III) complexes remains limited by challenges associated with their synthesis. The use of bidentate and tridentate ligands is crucial to prevent the facile reduction to gold(I) or decomposition to elemental gold(0). However, most of the existing protocols to attain both, mono and bis-cycloaurated complexes, rely on harsh conditions and/or require the use of stoichiometric additives or toxic reagents (e.g. Ag or Hg). Here, we will present our contributions in this area which underscore the critical role of gold(III)-stabilized frameworks in unlocking new reactivity paradigms.