# C-H and O-H bond oxidation by dinuclear Au(II)-OR complexes

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# STELLINGEN

Behorende bij het proefschrift

# C-H and O-H bond oxidation by dinuclear Au(II)-OR complexes

Van

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1. Although Au-O is generally considered a weak bond, it does not necessarily imply high reactivity. (chapter 1)

2. Even though the complex has the same ligand backbone, reactivity will be greatly influenced by the specific atmospheric conditions to which the system is subjected (chapter 4).

3. Teamwork between daily supervisors and Ph.D. students is crucial for developing successful projects.

4. Irradiation can serve as a powerful tool when conventional thermal reactions prove ineffective. Bringing the molecule to an excited state will influence the metal-metal bond and affect the stability of the complex, opening up new doors for reactivity (chapter 5).

5. A comprehensive investigation into the chemistry of Au(II) complexes is imperative, as it can unveil intriguing synthetic prospects. The reactivity of Au(II) complexes remains largely unexplored, with minimal documentation in existing literature. It is essential to incorporate more intricate substrates in experimental studies of Au(II) complexes to broaden the repertoire of known reactions.

6. Papers always publish great success stories, but we can learn more from the inability to meet the proposed hypothesis. Every "failed" experiment confers changes to the researcher's perspective for the further development of science.

7. *To break the M-M metal bond or to polarize the M-M bond, that is the question.*
   *K.M.Hess*
   Answering this question will be the most important factor in the dinuclear complex system. Polarization of the bond will enable two distinct sites suitable for individual components of PCET, and breaking the M-M bond will create a single-site reactivity.