# Synthesis, Characterization, and Reactivity of Platinum/Ruthenium Heterometallic Complexes

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An understanding of how the structure of complexes containing two different types of metal atoms influences their ability to oxidize an alcohol can allow for better tuning of catalysts. Platinum and ruthenium complexes are of particular interest due to the success of alloys and nanoparticles as electrodes in direct methanol fuel cells (DMFCs) where the alcohol methanol is oxidized with oxygen. The reactivity of a series of platinum and ruthenium heterometallic complexes have been investigated. The reactivity of the heterometallic clusters (shown below) is greater than the reactivity of related platinum-only complexes. Further characterization and reactivity studies are underway. Attempts to remove a sulfur bridge continue.