

Department of Chemistry

Departmental Seminar:

Synthesis Month

You are cordially invited to a virtual lecture presented by



Estefan van Vuuren

Supervised by Dr Frikkie Malan Prof Marile Landman
Department of Chemistry, University of Pretoria

Date: Friday, 17th September 2021
Time: 10:30 – 11:20
Venue: [Google Meet](#)
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Complexes of Rhodium and Iridium featuring cyclometallated NHC moieties: Synthesis and catalysis.

The synthesis of a range of iridium- and rhodium-based *N*-heterocyclic carbenes (NHC) complexes and their application in catalysis will be discussed. A variety of imidazolium salts were synthesised and utilised in the formation of bidentate NHC complexes bonded through a carbon-based tether. Two metal precursors of rhodium [Cp*RhCl₂]₂ and iridium [Cp*IrCl₂]₂ were synthesised and subsequently applied to the synthesis of the novel complexes *via* a silver transmetallation method. Unique reaction products were formed that are unprecedented in literature. Each novel complex was characterised using various techniques, including NMR spectroscopy and single crystal X-ray diffractometry (SCXRD). The catalytic activity of each complex was evaluated in the hydrosilylation of internal alkynes, with the iridium complexes also being applied to transfer hydrogenation of aryl ketones/aldehydes utilizing ⁱPrOH as the hydrogen source. Catalytic results will be reported.