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Showcasing research from Professor Vicky Montiel-Palma's laboratory, Department of Chemistry, Mississippi State University, Starkville, United States of America.

Unexpected alkyl isomerization at the silicon ligand of an unsaturated Rh complex: combined experiment and theory

The equilibrium established between a monomer and its dimer is a fundamental process in biochemical and chemical transformations. Also fundamental is the isomerization of alkyl metal complexes. Yet, isomerization of an alkyl ligand substituent is exceptional and must involve migration of the substituent to the metal. Herein, we show that silyl substituents on a phosphinosilyl ligand at Rh can be isomerized from isopropyl to *n*-propyl during the metalation of $[\text{RhCl}(\text{COD})]_2$ and the silylphosphine. A common intermediate was computationally identified to give rise to a Rh monomeric complex or its corresponding isomerized dimer. The change of only one *n*-propyl group is enough to favor dimer formation!

Artwork by Gaby Sanchez-Lecuona.

As featured in:



See Charles Edwin Webster, Virginia Montiel-Palma *et al.*, *Dalton Trans.*, 2023, **52**, 16159.