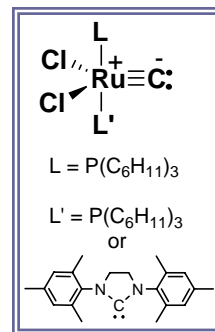


Ruthenium carbide Chemistry (*Prof. Joseph A. Heppert*). Prof. Heppert's group has recently isolated and characterized the first class of stable, neutral, terminal metal carbides. These ruthenium-based compounds exhibit an extensive chemistry beyond Brønsted basicity and could be an important link in understanding the Fischer-Tropsch catalytic process, which involves conversion of carbon monoxide and hydrogen into liquid hydrocarbons to produce synthetic petroleum. REU students in Prof. Heppert's laboratory will investigate the mechanism of formation of the novel ruthenium carbides and explore their reactivity patterns. Students participating in this program will engage in organometallic synthesis, learn methods and techniques used in handling air- and moisture sensitive materials, and gain hands-on experience in the spectroscopic characterization of their products using multinuclear NMR spectroscopy, as well as FTIR and UV/vis spectrophotometry. Prof. Heppert has published twelve papers with undergraduate co-authors including six with REU students.



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