



Apr 12th, 9:00 AM - 10:00 AM

Linking Polyoxometalates With Amide Bonds

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Binder, Joseph B.; Poppe, Emilia; and Roesner, Faculty Advisor, Rebecca A., "Linking Polyoxometalates With Amide Bonds" (2003). *John Wesley Powell Student Research Conference*. 7.
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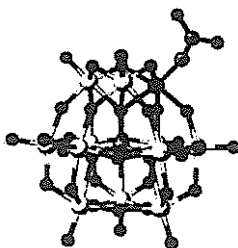
Poster Presentation P7

LINKING POLYOXOMETALATES WITH AMIDE BONDS

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Polyoxometalates (POMs) of the Keggin structure, $[XM_{12}O_{40}]^{n-}$, are large metal-oxygen anions. One type, the unadecatungstophosphate lacunary Keggin ion ($[PW_{11}O_{39}]^{7-}$) has one fewer W-O unit than the usual Keggin ion, leaving a hole into which another metal atom can be inserted. In previous work, we inserted a rhodium atom with a carboxylate ligand into the vacancy and reacted this product with aniline to form an amide.

In the current work, the amide-forming reaction has been attempted with a diamine ($H_2NPhOC_3H_6OPhNH_2$). With two amine groups on the same molecule, two carboxylate groups on two polyoxometalates can form amide bonds with the same amine, tethering the two POMs together. The products of these reactions have been characterized spectroscopically.



Keggin ion with rhodium-carboxylate adduct occupying vacancy