SETH KEITH, KASUMI HAYASHI, and JOANNA WEBB, Dept of Chemistry, WV Wesleyan College, Buckhannon, WV, 26201. Synthesis and characterization of a cobalt complex bearing a chiral nitrogen-based ligand.

Hydrogenation reactions are used to create essential molecules in today's pharmaceutical, petrochemical, and agricultural industries. Single enantiomer products are desirable and often developed using asymmetric hydrogenation reactions, especially important for drug synthesis in the pharmaceutical industry. Asymmetric hydrogenation reactions currently utilize catalysts made from expensive and toxic metals, such as ruthenium, rhodium, and iridium, and are usually supported by phosphine ligands. Synthesis of an asymmetric catalyst based on a first row transition metal would be advantageous. In addition, chiral nitrogen-based ligands provide an opportunity to investigate a relatively underexplored area of hydrogenation chemistry. Thus, efforts toward a cobalt complex supported by a chiral nitrogen-based ligand, (R,R)-2,6-bis[1-(*N*-piperidinyl)ethyl]pyridine, are underway. Ligand synthesis, characterized by NMR spectroscopy, and initial reactions with cobalt will be discussed.