Stony Brook University

Department of Chemistry

presents

The Eighth Franklin Award Lecture

Prof. Patrick L. Holland

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Breaking It and Fixing It: New Chemistry With Nitrogen

Hosted by Prof. Stephen Koch

Friday, April 10, 4:00 pm
Wang Center Lecture Hall 2
Reception 3:15 pm, Wang Center Theater Lobby

Atmospheric N_2 is a cheap, abundant resource with great potential for energy storage and chemical synthesis, but it is difficult to convert it into other compounds ("fixing" nitrogen). This seminar will describe the challenges and opportunities of nitrogen fixation, as well as my students' discoveries of how to break the N–N bond of N_2 using homogeneous transition-metal complexes. In addition to new catalysts for producing ammonia, we have identified a new mechanism for sequential C-H activation and N-N activation to create C-N bonds. Detailed mechanistic studies reveal a cyclic reaction, which gives a route from atmospheric N_2 and petroleum-derived arenes to substituted anilines. This is an important step toward preparing useful chemicals using air as a starting material.