UNIVERSITY OF LOUISVILLE

COLLEGE OF ARTS & SCIENCES

Department of Chemistry

Faculty Research Seminar
January 24, 2025
@4:00 pm
CBLL16

Title: Ambiphilic ligands featuring carbenium ions: Modulating structure and reactivity across main group and transition metal systems

François P. Gabbai
|
Department of Chemistry
Texas A&M University

After a brief summary of the group's diverse research directions, this presentation will focus on our recent endeavors in the chemistry of ambiphilic platforms featuring a carbenium ion as the electron-poor functionality. Our investigations of such platforms as ligands for transition metals will showcase their capacity to not only support unusual metal-to-carbon dative interactions but also influence the catalytic properties of the transition metal center. The principles gleaned from these studies will be extrapolated to chalcogen-containing system systems, wherein the carbenium center can be leveraged to modulate the redox reactivity of the main group element. The presentation will also include examples of systems in which the carbenium unit is reversibly neutralized through the coordination of a Lewis base. The reversibility of this motif, established both in solution and in the solid state, will be correlated with the ability of such systems to serve as photoredox catalysts.