

C-H Activation and C-C Coupling Reactions of Metal Ions: Vibrational Spectroscopy of Intermediates and Products

Seminar

Monday

April 13, 2026

3:00 – 4:00 p.m.

Beaupre Center,
Room 105

Ricardo Metz

Dept. of Chemistry

University of Massachusetts

Amherst

Gas-phase transition metal cations M^+ and metal cluster ions M_x^+ can activate C-H bonds even in such unreactive molecules as methane. I will describe vibrational spectroscopy studies of reaction intermediates and products of these reactions. In addition, working in the gas phase allows us to study solvation of charged species, one solvent molecule at a time. Vibrational spectroscopy reveals how interaction with metal cations affects bonds in adjacent acetone solvent molecules and eventually triggers C-C coupling reactions.