Catalytic behavior of 2D Materials

Key features
• (photo)catalytic chemistry
• electron spectroscopy
• electron microscopy

Scope of effort
• Understand the surface (photo)chemistry of layered semiconductors as a function of layer number
• Determine the catalytic activity of materials for water splitting and carbon dioxide reduction
• Evaluate 2D materials predicted by theory to have electronic properties favorable for energy related catalysis

Challenges to address
• Effective catalytic surface for water splitting and carbon dioxide reduction
• Increase activity of nanosheets via isolation of electron and hole through the use of heterojunctions