

Department Colloquium

Prof. Robert Hamers
UW Madison



*“Why Diamonds are
a Guy’s Best Friend”*

The robust nature of sp^3 bonding in diamond makes it an ideal material for a range of applications in biological interfaces, electrocatalysis, and photocatalysis. Over the last 10 years we have been investigating the surface chemistry and photochemistry of diamond and other wide-bandgap semiconductors such as metal oxides. In addition to being extraordinarily stable, diamond has an unusual property of negative electron affinity (NEA), meaning that it readily emits electrons when illuminated with ultraviolet light. NEA plays a key role in understanding the surface functionalization of diamond and provides it with some important new capabilities in catalysis, including the ability to photo-chemically reduce N_2 to NH_3 by directly emitting electrons into water. In this talk I will review some of the highlights of our work and point to some emerging new opportunities.



Friday

February 1

3:30 p.m.

1315 Chem