Tell us about your work.

The focus of my work is the activation and reaction of alcohols (MeOH and EtOH) on NiAu and PtCu atom alloy model surfaces. Alcohol reduction reactions are analyzed by scanning tunneling microscopy and temperature programmed reaction spectroscopy on well-defined alloy systems as a function of alloy stoichiometry and alloying temperature. The control over surface structure, alloy geometry and adsorbate stoichiometry offered by the model system approach allows me to investigate many unknown ensemble effects in surface chemistry.

How is your work related to what other members of IMASC are doing?

As the two most investigated systems in IMASC EFRC, the Au and Cu-based alloys build a bridge between my work and the projects of other members. The Friend/Madix and Sykes groups work together on investigating the reaction mechanism of alcohols on Cu single crystal surfaces. I also closely collaborate with theoretical teams to explore the NiAu and PtCu structures as well as their reactions with alcohols. In addition, my work is performed in conjunction with the catalysis work in the Friend and Stephanopoulos groups on NiAgAu nanoporous systems in an effort to understand the fundamental steps of the reaction and also to examine the pressure gap between systems.