

# Yiyu Wang

Doctor of Philosophy

Department of Chemical and  
Materials Engineering,  
Faculty of Engineering

Image created at the CME Building,  
University of Alberta

# Art of Welding

Semi-finalist

This micrograph (magnified  $\times 500$ ), taken by an optical microscope, shows multi-scaled crystalline grains at the interface between a martensitic weld metal (upper left) and a Grade 91 steel (bottom right). Weld metal solidified from the molten steel liquid and grew into coarse columnar crystals during welding. Grade 91 steel transformed into thousands of fine polygonal crystals to lower its high energy absorbed from the adjacent hot liquid.

Welding/joining of metallic materials has been a critical technique during structural construction. A sound weld/joint ensures integrity of the entire structure components. The quality of the interface determines the strength of this weld. Interface structure control is a hot research topic in welding engineering.

My name is Yiyu Wang, a 3rd-year PhD student from Department of Chemical and Materials Engineering. My research focuses on microstructure characterization and properties evaluation of steels and steel joints by using advanced microscopy techniques. I am addicted to adventuring the mysteries of steels under microscopes.