

Bavarian's group Research projects: Summer 2017

Program will start: June 5, 2017 till August 11, 2017 (~15-20 hrs per week, minimum three days/wk)

For more information please call (818)677-7746, (Prof. L. Reiner or Prof. B. Bavarian) or visit us in JD1130 during weekday M-F

Application of High Strength Aluminum alloys for Aircraft Applications

RESEARCH OBJECTIVES

Investigate mechanical and corrosion behavior of high strength aluminum alloys used in aircraft industry. Fellow researchers will spend multiple weeks training to learn how to prepare samples, use universal test equipment, microscope, and conduct metallographic analysis, and workshop on Lab. safety. Students will explore the effects of different heat treatment conditions on alloy performance for several high strength aluminum alloys such as 7050, 7055, 7075 and light weight high strength Al-Li alloys such as 2095. Materials characterization will be conducted using SEM/EDAX analysis.

Corrosion Protection of Steel pipes/ Reinforced Concrete Structures Using corrosion Inhibitors

RESEARCH OBJECTIVES

AIMS² students will use different corrosion inhibitors to protect steel alloys in highly corrosive environments. They will do literature research, look at material selection, and test corrosion inhibitors using potentiostatic, potentiodynamic and EIS impedance measurements for monitoring corrosion behavior of steel rebar in concrete. Students will be trained to use equipment, do analysis and prepare testing samples.

Application of Low Melting Point Materials for Soldering

RESEARCH OBJECTIVES

AIMS² students will work on current soldering alloy, and alternative for the lead free soldering. They will be involved in literature research initially and then selection and sample preparation, materials characterization of multiple phase compounds using scanning electron microscopy and energy dispersive analysis. The outcome of the project is a better understanding of joining process for electronic devices, and learning about the underlying mechanisms and microstructural of these alloys.