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GRADUATE STUDENT POSITIONS

Materials Science and Engineering Department
University of Idaho-Moscow, ID 83844-3024

Contact: Prof. Batric Pesic, McClure Hall, Moscow ID 83844-3024

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Position Description: Prof. Pesic has the opening for two graduate student research assistants. The graduate students would perform the research on electrorefining of depleted uranium from molten salts. Both projects are supported by the Idaho National Engineering Laboratory (INL), therefore upon completion, the expectation is that the graduates would apply to, and be employed by, the INL.

The brief description of the projects is given below:

Project #1: Fundamentals of electrochemical reactions of uranium in molten salts.

The project objectives are determination of how uranium metal begins its growth during electrodeposition from molten salts (LiCl-KCl), and how materials selection for electrodes determines the properties of U-deposits (morphology and adhesion).

Project #2: Design of new electrochemical cells based on application of ultrasound (SONER Cells).

SONER cells stands for sonoelectrochemical refining. The concept of utilizing the ultrasonic energy to enhance the electrorefining of uranium is proposed by Prof. Pesic, and the objective of this research is to initially prove the proposed concept, and later on to develop the plant scale SONER cells. There are many chemical and mechanical issues to resolve on this project. From mechanical point of view the research issues are how to introduce the ultrasonic energy into the reactors, how to scale the ultrasonic transducers, and how to “tune-up” the reactor for its optimal performance. The number of electrochemical subjects of importance for the study is also numerous. For example, we need to determine if ultrasound can be tailored to either “blast off” uranium of the cathode surface, or to make the electrodeposit of higher density.

Who should apply: Graduating engineering students in MSE, MET, ChE, ME seeking Masters Degree in Materials Science and Engineering. The US citizenship is mandated by the Department of Energy.

Starting time: Immediate, or Spring 2006 semester.

Stipend: Salary + paid tuition + paid health insurance.