

Abstract

Example 1:

Reprocessing used nuclear fuel (UNF) is crucial to the completion of a closed fuel cycle and would reduce the volume of waste produced during nuclear power production. Pyroprocessing is a promising reprocessing technique as it offers pure forms of product recovery. A limiting issue with pyroprocessing, however, is the inability to monitor concentrations of chemical species inside the electrorefiner. As with many nuclear processes, safeguards and monitoring become increasingly important; therefore, development of real-time monitoring techniques for various chemical species may allow for commercialization of this recycling process [1-5]. The focus of the proposed research is to develop accurate diffusion coefficients for Yttrium, a fission product found in UNF, in molten salt conditions through Cyclic Voltammetry (CV). Quantification of the diffusion coefficient will allow current measurements from inside the melt to be directly related to species concentration. With the diffusion coefficients, in-situ CV would then facilitate real-time monitoring of chemical concentrations.

Example 2:

This project aims to analyze the social and cultural effects of the Iranian Revolution through primary source material and interviews with those directly affected by the revolution. Iran's political seclusion and its animosity toward the West has limited the voices and perspectives available to an American audience. Moreover, the attitude of the West towards Iran since the revolution has been myopic and often marred by political perspectives. The objective of this project will be to bring those voices and stories to light, putting a greater focus on the experiences of individuals who lived through the Revolution. These stories will be presented in a digital medium (film and web) in order to bring these voices and perspectives to an American audience.