NEER FY 2001 PROJECT ABSTRACT	
Grant Number:	01ID14118
Project Title:	Development of an Alpha/Beta/Gamma Phoswich-Based Radiation Detector for Nuclear Waste Stream Cleanup Processes
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Abstract:	At numerous DOE sites around the nation, facilities are being developed to process wastes that are in storage from past nuclear activities. Through the proposed treatment processes, potential environmental threats can be mitigated and nuclear materials can be concentrated for ultimate disposal. Accurate monitoring of the radioactivity in the waste processing streams must be carefully quantified to insure that radioactivity in effluents are below prescribed levels. To address this need, an innovative, alpha/beta/gamma/neutron radiation detection system is to be developed for this radiological engineering application. Simultaneous measurements of all radioactive components can be performed at very low levels through active, electronic discrimination of different types of radiation. This system incorporates new digital signal processor (DSP) techniques using a flash analog-to-digital converter (FADC) system for radiation detector pulse analysis. Specifically, it couples digital technology to phoswich detectors to provide more accurate and reliable particle discrimination and spectroscopy. The L research proposed here will allow implementation of this useful technology to nuclear waste handling processes.