Materials Science for Advanced Nuclear Energy

Executive Summary

This proposal is to continue and extend the project “Materials for Nuclear Energy” that was awarded funding by the NRC in Fiscal Year (FY) 2008. The proposed project will create synergies between the Nuclear and Radiological Energy (NRE) Program, the Woodruff School of Mechanical Engineering (ME), and the School of Materials Science and Engineering (MSE) for developing courses in the area of Materials for Advanced Nuclear Energy (MANE) at the Georgia Institute of Technology (GIT). Our approach will be two fold: (a) we will develop new courses in the area of Materials for Nuclear Energy (two in NRE and two in MSE); and (b) we will develop modules on topics related to nuclear energy, which can be incorporated in to courses already being taught in the NRE, ME, and MSE programs. The four new courses to be developed will provide an attractive minor for all Ph.D. students in the College of Engineering, particularly for mechanical, materials, and nuclear engineering majors. The modules will be developed on topics such as melt solidification, structure property relationships, corrosion, and destructive/non-destructive characterization. Conceptually, these courses are structured according to the two main classes of materials that are essential to the fuel and reactor assembly.

Given the large size of the College of Engineering program at Georgia Tech, this project will have a significant impact in improving the education infrastructure for nuclear engineering in the country.

Principal Investigator: Chaitanya Deo, chaitanya.deo@nre.gatech.edu