

Executive Summary:

“Drexel University Faculty Development Program in Nuclear Materials Science: Design and Characterization of Radiation-Tolerant Alloys Using Multiscale Grain Boundary Engineering and Advanced Microscopy Methods”

Drexel University’s faculty development program will result in quantitative models of radiation induced segregation and its effect on mechanical properties in various nuclear reactor materials. These results will aid in the understanding of materials for life extension of Light Water Reactors. Additionally, the techniques, methodology, and further knowledge gained about crystalline interfaces will serve as a means to optimize future damage resistant materials for next generation higher temperature reactors. This knowledge will be extended to various outreach programs, ranging from STEM education programs to Drexel WINS (Women in Nuclear Science) fellowships at both undergraduate and graduate levels. The program involves collaborators and an advisory panel from Department of Energy laboratories and Westinghouse Electric Company to ensure its success.

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