

FINAL REPORT

1. Contribution from the Private Sponsor

The private sponsor for our Matching Grant Program is the Electric Power Research Institute. Last year, EPRI provided \$60,000 of support for our Matching Grant Program. However, the Department of Energy was only able to provide \$45,000 of support due to reduced resources. To make up the difference, we used funds (\$15,000) from our Jeanette and Carl J. Goldbaum '50 Fund for Student Support in Nuclear Engineering, bringing support up to the \$120,000 level so that we could support our research.

DOE Patent Clearance Granted

2. Distribution of Funding Support

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*Jan 7, 2013*  
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Office of Intellectual Property Law

DOE Chicago Operations Office

A. Student Support

Support was provided for three undergraduate summer research projects. One student worked on the design and implementation of an x-ray fluorescence experiment and a Compton Scattering experiment which were integrated into our Nuclear Engineering and Engineering Physics Laboratory course this fall. A second student worked on a time-of-flight experiment for cross-section measurement which will provide an additional new experiment for our Nuclear Engineering and Engineering Physics Laboratory course. A third student worked with our Nuclear Data Program examining cross-section modeling theory. The stipend for each student was \$5,000.

Support was provided for two graduate student summer research projects. One student was responsible for the installation and testing of the new rabbit system at our Electron Linear Accelerator. The second student worked in our Multiphase Research Laboratory in the area of sonoluminescence. The stipend for each student was \$5,000.

Two graduate students were provided with partial tuition support this year. This support allows their research grants to provide summer support so there will be continuity of the research during the summer. The magnitude of the tuition support was \$10,000 per student.

B. Curriculum Development

Matching Grant funds (\$20,000) were used to enhance one of our undergraduate classrooms so that we can provide a multi-media educational environment for our students. The equipment installed included an LCD projector, a document projector, computers, a white screen and laptop ports.

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## **DISCLAIMER**

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Using Matching Grant funds (\$5,000), we developed a new first-year course entitled Introduction to Nuclear Engineering and Engineering Physics. The purpose of this course is to help recruit students for our program. The course consists of many hands-on-experiences and demonstrations relating to nuclear technology and application. The course is taught by members of our faculty and staff as well as current and former students. We offered this course for the first time this fall, and 18 students are currently enrolled.

#### C. Faculty Development

Matching Grant funds (\$25,000 from the EPRI portion) were used to leverage with National Science Foundation funding (\$25,000) to enhance the research program of Dr. George Xu, who is doing cutting-edge tomographic body modeling for radiation dosimetry calculations. This is the second year that we have been able to help Professor Xu in such a fashion and, in part because of this help, George was successful in his promotion and tenure case in the Spring 2001 semester and is now a tenured Associate Professor.

#### D. Instrumentation and Equipment Enhancement

Matching Grant Funds (\$15,000) were used to purchase an x-ray imaging camera to use in conjunction with the parametric x-ray source which we are developing at our Electron Linear Accelerator. The Matching Grant funds were leveraged to obtain an equal amount of funding from our School of Engineering.

#### E. Other Activities

In March 2000, we hired Ms. Laurie Wetherbee to become Program Director for Student Recruitment, Student Services and Marketing of our Program. With Matching Grant funds (\$10,000), we have provided Ms. Wetherbee with resources to develop materials for recruitment, to enhance our Website, and to travel to schools to recruit students for our Program. In addition, Laurie is actively involved in Rensselaer's efforts to increase student diversity. Ms. Wetherbee was also instrumental in developing our new course, Introduction to Nuclear Engineering and Engineering Physics.

### 3. Innovative and Effective Use of Funds

We have been innovative and effective in our expenditures by: (1) avoiding expenditures which accrue indirect charges; and (2) leveraging the Matching Grant funds with other sources of funding.

#### 4. Enhancing Partner Relationships

Sponsorship of the Matching Grant Program represents a new EPRI involvement with University Nuclear Engineering Programs. We have been both responsive and proactive in our interactions with EPRI. We believe that these interactions will be a positive influence regarding EPRI's future involvement with University Nuclear Engineering Programs and DOE.

#### 5. Overall Impact of the Program on Enhancing the Nuclear Engineering Program at RPI

The impacts of the Matching Grant Program with regard to enhancing our Nuclear Engineering Program are as follows:

- The undergraduates involved in their summer research programs have become very energized about our Nuclear Engineering Program, and have become active spokespeople and, therefore, recruiters for other undergraduates to enter our Program.
- The graduate student summer research stipends and the tuition assistance for graduate students have allowed research continuity over the summer and has thus enhanced our research effectiveness.
- The enhancement of our undergraduate classroom to include multi-media capabilities translates into an improved learning environment and greater student satisfaction. This not only helps in the education of our students, but also provides the type of positive experience which helps us recruit additional students.
- The enhancement of our research laboratory capabilities will increase the likelihood of our faculty in obtaining additional research funds. These additional funds will translate into more graduate research assistant offers, which will increase our graduate student population, enhance our research productivity, and provide more high-quality employees for the nuclear industry.
- As a result of our enhanced recruiting and marketing activities, we have noticed an increase in the number of inquiries and applications for our program and, in addition, we have more students entering our first-year program than last year. The effect of our recruiting and marketing efforts is also evidenced

by the number of students who have enrolled in our new course, Introduction to Nuclear Engineering and Engineering Physics.