Joint initiative in a new type of nuclear radiation detector through faculty development between the departments of Radiation Oncology and Physics and Astronomy

Executive Summary:

The goal of the proposed Faculty Development program is to provide the necessary funding to retain an existing highly qualified faculty member and expand the research effort in large-area nuclear radiation detectors and related fields. The project is aimed at developing a synergetic position between the two departments, Radiation Oncology and Physics and Astronomy, to use their existing strengths in radiation delivery and detector research. Expertise and experience from faculty at both departments is implemented in areas of nuclear physics, semiconductor growth, characterization, and modeling to achieve this goal. The objective is to restructure the existing position at the level of Assistant Professor to bridge between the two departments and maintain their joint effort in developing a workforce capable of supporting the science, technology, and operation of large area nuclear radiation detectors with applications in health and medical physics and beyond. A highly qualified candidate for such a position is currently available with the necessary background and experience in both nuclear radiation dosimetry and detectors, and semiconductor device development. Currently, the Department of Radiation Oncology has a unique accredited program in medical physics which attracts highly qualified graduate students country-wide. The Department of Physics and Astronomy on the other hand has a world-wide recognition in thin-film semiconductor device (photovoltaic) development. We expect that a proposed joint position will attract still more high quality students that can benefit from this synergy and contribute to the future development of nuclear science applications particularly in areas of health and medical physics and radiation detection.

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