

## **Abstract:**

“Medical Physics focuses on applying mathematical and physical principles to medical technology and practice. Medical Physicists typically work in Radiology (diagnostic physicist) or Radiation Oncology (therapeutic physicist) healthcare environments. A diagnostic physicist will act as an advisor to physicians counseling them on issues related to image quality and patient risk. Diagnostic physicists will also ensure machines are working properly and design protocols used for scanning patients. Diagnostic physics research can range from developing new clinical imaging techniques to new imaging technology. A therapeutic physicist consults with radiation oncologists on the physical and radiobiological aspects of patients’ cancer treatments and the development of radiation treatment plans. Therapeutic physicists oversee the quality assurance of the radiation oncology program and the commissioning of new treatment technology. Therapeutic physics research can range from inventing new treatment technology or techniques to improving the patient’s outcome by optimizing existing technology. This talk will begin as a case-based review to illustrate the clinical work performed by diagnostic and therapeutic medical physicists. A brief review of past and current research will then be given to illustrate typical research projects that are characteristic of medical physics research.”

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