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**A journey into medical physics as viewed by a physicist**

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The world of physics is usually linked to a large variety of subjects spanning from astrophysics, nuclear/high energy physics, materials and optical sciences, plasma physics etc. Lesser is known about the exciting world of medical physics that includes radiation therapy physics, medical diagnostic and imaging physics, nuclear medicine physics, and medical radiation safety. These physicists are typically based in hospital departments of radiation oncology or radiology, and provide technical support for patient diagnosis and treatment in a clinical environment. This talk will focus on providing a bridge between selected areas of physics and their medical applications. The journey will first start from our understanding of high energy beam production and transport beamlines for external beam treatment of diseases (e.g., electron, gamma, X-ray and proton machines) as they relate to accelerator physics. We will then embrace the world of nuclear/high energy physics where detectors development provide a unique tool for understanding low energy beam distribution emitted from radioactive sources used in Brachytherapy treatment modality. Because the ultimate goal of radiation based therapy is its killing power on tumor cells, the next topic will be microdosimetry where responses of biological systems can be studied via electromagnetic systems. Finally, the impact on the imaging world will be embraced using tools heavily used in plasma physics, fluid mechanics and Monte Carlo simulations. These various scientific areas provide unique opportunities for faculty and students at universities, as well as for staff from research centers and laboratories to contribute in this field. We will conclude with the educational training related to medical physics programs.