PHYSICS AND ASTRONOMY COLLOQUIUM

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"Gold nanoparticle radiosensitization – the road traveled, the road ahead"

Abstract

An evolving body of recent literature alludes to the potential to sensitize tumors to radiation therapy using metallic nanoparticles. In preclinical studies, a technique that holds promise for eventual clinical deployment is nanoparticle-assisted radiation dose enhancement. Computational techniques offer an explanation for and predict the biophysical consequences at a nano-/meso-scopic scale. Preclinical studies in vitro and in vivo provide evidence of radiosensitization. Nonetheless, there are persisting gaps in knowledge relating to the molecular mechanism of action and optimum nanoparticle characteristics – some of these issues will be addressed. My presentation will start with familiarizing the audience with the potential applications of gold nanoparticles in radiation therapy using specific illustrative examples, explore ways to understand the underlying mechanisms of the effects observed, and provide a perspective on how to advance these concepts to the clinic.

Wednesday, February 28, 2018
3:30 p.m.
BWC Building
Room A104