

Seminar - Open to all UNF Students, Faculty and Staff

Dual Source CT: Applications and Opportunities

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Science and Engineering (Building 50)

Room 3104 (Farshing Classroom)

Abstract

One of the latest advances in medical imaging is dual source computed tomography in which two X-ray tubes and two sets of detectors are mounted perpendicular to one another on the rotating gantry, as opposed to a single tube and detector array in conventional CT. The operation of both tubes at the same X-ray energy improves the temporal resolution by a factor of two – a critical advancement for cardiac imaging that can eliminate motion artifacts and the need for drug induced reduction of a patient's heart rate. Operated at two different X-ray energies, dual energy CT acquires two image datasets simultaneously. Because the X-ray attenuation of tissues is partially dependent upon the energy of the X-ray beam, this technique enables a new level of tissue differentiation based upon the change in attenuation seen between the two datasets. With this new information also come questions of how best to display and store the increase in image data. This seminar will outline the basic physics of CT and present a variety of early applications of dual energy and dual source CT in medical imaging.