The Basic Principles of Ultrasound Imaging

Ultrasound Imaging is one of the primary imaging modalities used in medicine today. It is almost exclusively used in diagnostic procedures. It has the advantages of being a non-ionizing imaging modality. Ultrasound has been used in some therapy procedures, but current applications are limited. With the advent of nanoparticle technologies it may start to be used in new therapy technologies. One of the areas of research just getting started uses ultrasound to enhance or direct drug delivery. The details of this research will be discussed in a later presentation. To set the stage for this presentation this talk will explain the basic physics principles of ultrasound imaging and how it may be used in therapy applications.

As a side topic I will introduce the audience to the field of medical physics. This is a field that encompasses the study of imaging and therapy devices used in radiology and radiation oncology.