The Phenomenon of Nuclear Magnetic Resonance and Clinical Uses for Magnetic Resonance Imaging

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Nuclear magnetic resonance was discovered by physicists interested in the properties of atomic nuclei, and has since long been used spectroscopically in chemistry to identify molecular species. Local variations in the relaxation times of nuclei, particularly hydrogen, provide a means to image soft biological tissues and consequently an unparalleled noninvasive method for looking into the human body. This application was honored by the 2003 Nobel Prize in Medicine and Physiology. I will discuss some of the basic physics involved in image production, image characteristics, and clinical uses of MRI in anatomy, physiology, and medicine.

Friday, October 1st 2004, McCook 102, 3:00 pm, Refreshments 2:45 pm