

Magnetic Resonance Imaging (MRI) provides such features as excellent soft tissue contrast, temperature sensitivity and ability to detect thermally coagulated tissue, that make it well suited for the guidance, control, and monitoring of thermal therapies. In this talk the current progress in MRI guided focused ultrasound thermal ablations and other non thermal interventions will be reviewed. The treatment of uterine fibroids has been approved by the FDA and is on its way to become routine. There are several other clinical trials in testing MRI guided focused ultrasound for the treatment of breast and other tumors. In addition, there is evidence that low thermal exposures controlled by MRI can be used to locally activate treatments. Finally, animal experiments show that ultrasound exposures can induce transient blood-brain barrier disruption thus allowing targeted delivery of molecules such as chemotherapeutic agents in the brain.