Specialty Area: Bringing Radiation Therapy to the Next Level: Technical Concepts & Clinical Applications (Tuesday 23 April 2013)

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Highlights:
1. Overview Advantages to Design
   Avoid Irradiation of MRI
   Avoid production of eddy Currents
   Allows perpendicular and parallel configurations
2. Operations: Simulations and Hardware
   RF and magnetic shieldings
   Perpendicular vs Parallel configurations
   Radiation induced conductivity with RF coils
   Solutions to artifacts
3. Radiation Dosimetry
   Perpendicular vs Parallel configurations
   Artifacts
   Surface dose
4. Tumour Tracking
   Principles
   Tumour Autocontouring
   Auto Tracking and Prediction
   Proof of Concept Demonstrated
5. Installation advantages

Title: MR-Guided RT: Rotating the Magnet

Target Audience: Physicists, engineers and clinicians in MRI and in Radiation Oncology

OUTCOME/Objectives: Demonstrate the feasibility and advantages of the Concept/Design

PURPOSE: Demonstrate the clinical need of the device and the potential of improved clinical outcome, and list and resolve scientific/engineering hurdles involved

METHODS: Simulations and prototype development

RESULTS: Demonstration of successful operations

DISCUSSION: Feasibility is established, installation advantages

CONCLUSION: Usage is expected to significantly improve clinical outcome of all solid tumours presently treated by radiation, and to be used for solid tumours (eg, abdominal areas, GI, etc) not presently treated by radiation.

References: