

## Low Frequency Electromagnetic Interactions

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This talk will focus on the low frequency electromagnetic interactions that happen around MRI systems. Specifically, this concerns healthcare workers and patients who move in and around MRI magnets and pulsed gradients.

The talk should be of interest to the engineering, physics and radiography MR community. The issues of low frequency interactions have been highlighted in Europe over recent years as proposed regulations sought to limit the “exposure” of healthcare workers around MRI systems.

The talk outlines the origins and properties of the electromagnetic fields involved and examines their typical spatial distributions in and around MRI magnets. Computational modelling techniques are discussed and examples presented to demonstrate how and where induction happens.

An example of a radiographer (MR Tech) leaning into an MRI is shown below and the theoretical inductions at various field strengths illustrated to the right. Such calculations aid in determining safe practises and give us an insight into motion that creates induction.

