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*Well-posedness of a coupled PDE model of High Intensity Focussed Ultrasound heating of biological tissue*

Over the past decade, High Intensity Focussed Ultrasound (HIFU) has emerged as an important novel therapeutic modality in the treatment of cancers. In this talk, we present a set of equations that model the effects of HIFU on the temperature of biological tissue, where the effects of convection are taken into account. The methods to prove the well-posedness of the model for functions in  $L^p$  spaces are outlined. In particular, we describe the use of the Leray-Schauder fixed point theorem to prove existence of solutions to the set of equations and a priori estimates to establish uniqueness.