Modelling Atrial Fibrillation
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The 21\textsuperscript{st} century will be characterised by the need to master chronic diseases as the population ages, and among the greatest challenges is the disrupted cardiac electro-mechanics of the diseased heart that leads to atrial fibrillation, which is increasing in prevalence and is the single biggest cause of stroke. Annually more than 45,000 people in the UK are diagnosed with atrial fibrillation, consuming about £1 billion of the NHS budget.

Because of its common occurrence, and because there is a developing treatment that involves targeting complex signals within the heart, any progress in characterising the complexity of heart activity in atrial fibrillation is likely to have a large and immediate beneficial effect. The main research problem to be addressed by this PhD project will be to further develop the simple model for identifying critical regions in atrial fibrillation by Christensen \textit{et al} [1]. This might lead to a characterisation of heart activity in atrial fibrillation, thereby yielding a deeper understanding which eventually might enable predictions and hence suggest a better treatment protocol.


See also articles in \textit{APS Physics Focus}, \textit{Physics World} and the \textit{Imperial College news site}. 