

Theoretical and practical aspects of the inverse problem of electrocardiography

Bjørn Fredrik Nielsen
SIMULA, Oslo

Abstract:

The bidomain equations were introduced as a model for the electrical activity in the heart during the seventies. We explore the possibilities for using this model, the theory of inverse problems, level set techniques and ECG recordings for identifying ischemic heart disease. Myocardial ischemia is a reversible precursor of heart infarction and one of the most common diseases worldwide. In the first part of the talk we will address modelling issues and various mathematical aspects. The second part of the presentation is devoted to our experience with real world data recorded by our collaborators at Rikshospitalet-Radiumhospitalet HF.