Atrial fibrillation (AF) is a common cardiac arrhythmia characterised by an irregular heart rhythm. Pulmonary vein isolation is an effective therapy for patients suffering from paroxysmal AF. However, medicine is lacking a reliable curative therapy for patients with persistent AF. Recently, catheter ablation targeting low voltage areas (LVA) has gained attention as a promising approach. Besides arrhythmogenic substrate causing reduced amplitudes, bipolar amplitudes may be influenced by inter-electrode spacing and bipole-to-wavefront-angle. It is unclear to what extent these impact LVA in the clinical setting. We recently looked at the correlation between bipolar and unipolar mapping in terms of classifying LVA and identified a strong correlation between the two modalities. However, it is important to further investigate and understand the reasons behind the high correlation.

Motivation

Task

This work will use data obtained from 28 patients undergoing catheter ablation in the clinics along with data from patch simulations. There are four projects which can be worked on, analysing how the catheter effects the bipolar electrograms and if we can account for these changes.

Prior knowledge of MATLAB would be beneficial.

Communication and work will be done in English.

Contact

M.Sc Deborah Nairn

deborah.nairn@kit.edu

+49 721 608-4157

Geb. 30.33, Raum 507

Start date

As soon as possible