

Mini-Symposium
“Innovations in cardiac electrophysiology: from tissue to computation”

Organizer: Etienne Pruvot, Cardiology Department, CHUV Lausanne

When: 16 January 2026 from 14:00 – 17:30

Where: CHUV Lausanne, main building BH08, Auditorium TISSOT

Innovations in cardiac electrophysiology are bridging the gap between detailed tissue-level studies and computational models, leading to more personalized and effective treatment strategies for arrhythmias. This involves integrating data from various sources, such as electroanatomical mapping and optical mapping, with sophisticated computational models to understand and predict the behavior of electrical signals in the heart. These advancements are paving the way for patient-specific treatment planning and potentially improving outcomes for conditions like atrial fibrillation.

14:00	WELCOME WORDS ETIENNE PRUVOT
14:05-14:50	JAGMEET SINGH, HARVARD MEDICAL SCHOOL, USA SENSORS AND AI IN THE FUTURE OF CARDIOVASCULAR CARE
14:50 - 15:35	IGOR EFIMOV, NORTHWESTERN UNIVERSITY, USA IMPLANTABLE AND WEARABLE BIOELECTRONICS FOR CARDIOLOGY
15:35 – 16:00	COFFEE BREAK
16:00 - 16:45	SAMAN NAZARIAN, UNIVERSITY OF PENNSYLVANIA PERELMAN SCHOOL OF MEDICINE, USA LIPOMATOUS METAPLASIA AND VT CIRCUITRY
16:45 - 17:30	RÉMI DUBOIS , IHU LIRYC HÔPITAL XAVIER ARNOZAN, FRANCE PART I: AI IN CARDIOLOGY, FROM THE LABORATORY TO CLINICAL IMPLEMENTATION AND PART II: A REAL-TIME CARDIAC ELECTROPHYSIOLOGY SIMULATOR FOR INTERACTIVE TRAINING

The meeting is free of charge, but for organization purposes please register [HERE](#) prior to January 5, 2026.

The UNIL-FBM doctoral school attributes 0.5 ECTS to doctoral candidates for participation (incl. the attendance to the symposium and the post-event assessment task (MCQ) >>> information will be sent to registered doctoral candidates by the organizers after the registration deadline.

The event will be submitted for accreditation as continuing education to several clinical societies.

SPEAKERS' RESEARCH NARRATIVES

[Jagmeet Singh](#) is Professor of Medicine at Harvard Medical School and also the Founding Director of the Resynchronization and Advanced Cardiac Therapeutics Program, at the Massachusetts General Hospital Heart Center.

His lab is investigating coronary venous anatomy and ventricular lead implantation using rotational venography to propose new classifications and optimize implantation views, as well as multimodality image integration—combining CT, ultrasound, and fluoroscopy—to improve strategies for cardiac resynchronization therapy. His work also focuses on device diagnostics and remote monitoring to enhance prognosis and management of heart failure patients. Dr. Singh researches novel pharmacological treatments and catheter ablation strategies for atrial fibrillation, with an emphasis on patient selection, imaging, and ablation techniques.

[Igor Efimov's](#) research interests are related to the physiological mechanisms of cardiovascular disease and developing novel therapies for heart diseases with an emphasis on heart rhythm disorders and heart failure. Two engineering strategies are pursued: (1) development of novel implantable, interventional, and wearable bioelectronic devices for real-time device-based diagnostics and therapy of heart diseases and sudden cardiac death; (2) development of novel approaches to bioinformatics and machine learning to diagnose early stages or predisposition to heart disease and to guide the development of novel therapies.

[Saman Nazarian](#) is a clinical and translational investigator in the field of cardiac electrophysiology and is particularly interested in integration of advanced imaging modalities for optimization of procedural success for ablation of complex ventricular arrhythmia in structural heart disease. In his arrhythmia imaging laboratory, he oversees a team of individuals dedicated to facilitating atrial and ventricular arrhythmia research and clinical care within an academic medical center environment. Dr. Nazarian has been and continues to serve as the principal investigator for several grants from the National Institutes of Health to characterize the substrate for malignant arrhythmia.

The research of [Rémi Dubois](#) focuses on the application of machine learning techniques to biomedical and cognitive science challenges. In the biomedical domain, he develops and applies advanced algorithms for the detection, classification, and localization of cardiac arrhythmias, with a particular emphasis on atrial and ventricular fibrillation. These efforts involve the use of robust feature selection and optimization methods to enhance diagnostic accuracy and clinical utility. By integrating machine learning with systems bioscience, his work aims to bridge data-driven methods with mechanistic insights, ultimately contributing to both improved healthcare solutions and fundamental knowledge of bodily functions.