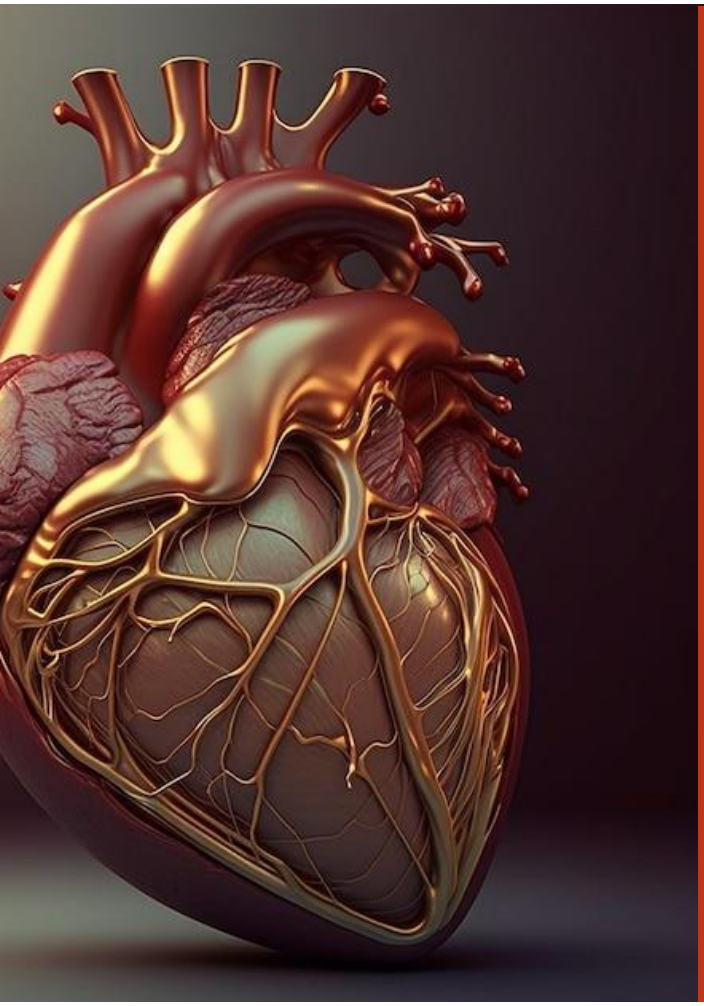
Seminar
iBraiN

Mercredi 2 avril 2025
11h-12h

Salle de reunion du 3ème étage – Bâtiment Planiol – Faculté de Médecine

3D mechanical waves trajectory reconstruction : a new 3D ultrasound imaging approach for evaluating cardiac tissue properties and remodeling



Sébastien SALLES
CRCN CNRS - Centre de Résonance Magnétique des Systèmes - Bordeaux

Cardiovascular disease is a leading cause of death in the Western world, with fibrosis being a common issue. Fibrosis in the myocardium causes dysfunction, fiber disarray, and tissue stiffness, affecting heart function. Early detection of fibrosis is crucial for effective treatment. This project aims to develop non-invasive, cost-effective methods for assessing cardiac and vascular tissue properties, such as stiffness, fiber orientation, and fibrosis levels. Currently, no technique is available for clinical use to evaluate these properties. The focus is on using 3D high-frame-rate ultrasound to study mechanical wave propagation in the left ventricle, which can help assess tissue stiffness and fiber orientation. A novel ultrasound method has been developed and validated through simulations and experiments. A clinical study with 40 patients will assess the feasibility of this technique. This innovation offers a cost-effective, real-time method for screening and patient follow-up.

Contact : ***u1253@univ-tours.fr***