

## SEMINAIRE SCIENTIFIQUE

Mardi 27 novembre 2018 de 11h à 12H  
Bâtiment des Humanité Amphi Est  
INSA – Campus Lyon Tech' La Doua

**Dr. Jianwen Luo**

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**Titre : Ultrasound-based carotid elastography for detection of vulnerable atherosclerotic plaques validated by magnetic resonance imaging**

Rupture of carotid atherosclerotic plaques is one of the major causes of stroke. Assessment of rupture risk (i.e., vulnerability) is important to prevent the occurrence of ischemic events. Ultrasound-based carotid elastography measures the motion and deformation of the plaque tissue induced by the pulsation of blood pressure, so as to infer the elasticity or composition distribution of the plaque for risk assessment. In vivo validation of carotid elastography is still limited. In this study, magnetic resonance imaging (MRI) was used as an in vivo reference standard to evaluate the capability of carotid elastography in detecting vulnerable plaques. The results demonstrated that the magnitude of the plaque strain rate and the heterogeneity of the elasticity distribution of the plaque tissue derived from texture analysis on plaque strain rate images can be used to effectively distinguish between the stable and vulnerable plaques. The inter-operator reproducibility of carotid elastography for identifying vulnerable carotid plaques is also validated.

**Bio:** Dr. Jianwen Luo received the B.S. and Ph.D. (with honors) degrees in Biomedical Engineering from Tsinghua University, Beijing, China, in 2000 and 2005, respectively. He was a Postdoctoral Research Scientist from 2005 to 2009, and an Associate Research Scientist from 2009 to 2011, in the Department of Biomedical Engineering, Columbia University, New York, NY. He became a Professor in the Department of Biomedical Engineering and the Center for Biomedical Imaging Research at Tsinghua University in 2011. He was enrolled in the Thousand Young Talents Program of China in 2012, and received the Excellent Young Scientists Fund from the National Natural Science Foundation of China (NSFC) in 2013. He was supported by the Young Scientists Project of National Key R&D Program of China in 2016. His research interests include ultrasound imaging and fluorescence imaging. He has authored or coauthored over 135 peer-reviewed papers in international journals, 60 conference proceedings papers, and 160 conference abstracts. He serves as an advisory editorial board member of Journal of Ultrasound in Medicine, and a member of the IEEE Engineering in Medicine and Biology Society (EMBS) Technical Committee on Biomedical Imaging and Image Processing (BIIP).