

University of Houston - Biomedical Engineering Seminar

Friday, February 4, 2022 12 noon

Via Zoom:

<https://uh-edu-cougarnet.zoom.us/j/97219977403?pwd=V0IRTGhJMTdDQ1dwUDR7JcGhYNTVFZz09>

Development Of Next Generation Quantitative Ultrasound And Elastography Imaging Methods



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Abstract

Noninvasive vascular elastography (NIVE) using quantitative ultrasound provides time-varying images of vessel wall axial and lateral translations, axial strain, and shear strain overlaid on B-mode images for mechanical tissue characterization. Using mechanical shear wave imaging, we study the viscoelasticity of various organs, tissues, and cells based on the analysis of the shear wave velocity and attenuation. The presentation will include a) recent developments and clinical validations of vascular strain elastography for carotid artery wall and plaque mechanical characterization, b) achievements made in the field of in situ imaging of red blood cell aggregation within blood vessels to monitor the state of inflammation, c) shear wave elasticity imaging of single oocytes and macrophages will be documented, and d) a brief overview of recent accomplishments on shear wave attenuation imaging and compression wave attenuation imaging to grade the severity of liver steatosis and liver cancer will complete the presentation.

Biosketch

Guy Cloutier received the B.Eng. in E.E. and Ph.D. in BME. He did a postdoc with Prof. K. Kirk Shung at Penn State. He is currently Director of the Laboratory of Biorheology and Medical Ultrasonics, University of Montreal Hospital Research Center. He has published more than 230 articles, has several patents, and licensed four technologies. His research interests are in quantitative ultrasound imaging, quasi-static and dynamic ultrasound elastography, development of multi-physics imaging methods, and biomechanical modeling. Dr. Cloutier received the National Scientist Award of the Fonds de la Recherche en Santé du Québec. He has had editorial positions with IEEE, PLOS One, Medical Physics, and was a Member of the International Advisory Editorial Board of Ultrasound in Medicine and Biology for 15 years.