Math Colloquium

University of Texas at Arlington - Department of Mathematics
Proudly Presents:

Dr. Sandra Rugonyi

Oregon Health & Science University

Friday, October 25th, 2024
2:00 pm – 3:00 pm
PKH 311

"Cardiac hemodynamics and congenital heart disease: restoring normal function"

<u>Abstract:</u>

In the normal heart, intracardiac blood flow (hemodynamics) optimizes pumping efficiency by facilitating the motion of blood in and out of the heart and closure of valves. Abnormal blood flow patterns that occur due to heart disease can be detrimental: both due to decreasing cardiac efficiency, and to the sensitivity of heart cells to abnormal hemodynamic stresses, which could exacerbate pathological progression of heart disease. In this talk, we will focus on hypertrophic cardiomyopathy (HCM), a congenital heart disease characterized by thickening of the left ventricular wall (hypertrophy) that leads to altered cardiac flow patterns. We will discuss how computational modeling approaches can be used in the evaluation of HCM patients and the effect of novel myosin inhibitor drugs to treat HCM. This work is in collaboration with Dr. Ted Abraham (UCSF HCM Center of Excellence).

Biography – Sandra Rugonyi

Sandra Rugonyi, Professor of Biomedical Engineering, Oregon Health & Science University (OHSU), Portland, OR, USA. Prof. Rugonyi has expertise in cardiovascular biomechanics and computational modelling. Her career started in Argentina, where she got an MS-equivalent degree in Nuclear Engineering from the Balseiro Institute. After working for a nuclear power plant and then a steel company, she moved to the USA, where she earned a PhD in Mechanical Engineering from MIT that focused on advanced numerical methods for fluid-structure interaction problems. In 2005 Dr. Rugonyi joined the Biomedical Engineering department at OHSU, and since then she has applied mechanical engineering principles to heart development and congenital heart disease. Dr. Rugonyi has contributed to fundamental understanding of hemodynamic regulation on heart formation.

Refreshments before the talk and socializing following the talk
http://www.uta.edu/math/seminars