

## Understanding fluid flow during various vascular abnormalities

Abstract: The project will involve modeling the rate of flow of water in artificial arteries (e.g. latex tubes or PVC pipes) and its significance in cardiovascular diseases. Fluid properties like flow rate and wall shear stress can be indicators of a vascular maladaptation and need to be clinically treated as soon as possible. This project will allow student to investigate how flow rate changes in different conditions like changing the tube length, the tube diameter, pressure, stenosis, aneurysm, perforation, etc. Then the students can correlate the experiments to different disease conditions like atherosclerosis. If time allows the student will have the opportunity to computationally model the blood flow using computational fluid dynamic techniques.