

Abstract Submitted  
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**Hemodynamics in stenotic vessels: synthesis of CFD and PIV results** JENN ROSSMANN, Lafayette College — The hemodynamics in atherosclerotic blood vessels have implications for disease progression; fluid mechanical patterns and forces are linked to the risk of plaque rupture. A synthesis of numerical and experimental methods is used to investigate the dynamics in representative stenotic vessels. Detailed understanding of the hemodynamics in these vessels can contribute to prediction of rupture risk for a particular atherosclerotic plaque. Computational Fluid Dynamics (CFD) simulations of blood flow in generic and patient-specific stenotic vessels are performed using commercial software. Results of CFD are compared with those of concurrent PIV experiments to evaluate the significance of arterial wall compliance, flow pulsatility, and turbulence. Aspects of stenosis morphology are identified as useful complements to imaging modalities used in patient diagnosis and treatment.

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