Abstract Submitted
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Decoding Hemodynamics of Large Vessels via Dispersion of Contrast Agent in Cardiac Computed Tomography[1] PARASTOU ESLAMI, JUNG-HEE SEO, Johns Hopkins University, THURA T. ABD, RICHARD GEORGE, ALBERT C. LARDO, Johns Hopkins School of Medicine, MARCUS Y. CHEN, National Institute of Health, NHLBI, RAJAT MITTAL, Johns Hopkins University — Computed tomography angiography (CTA) has emerged as a powerful tool for the assessment of coronary artery disease and other cardiac conditions. Continuous improvements in the spatial and temporal resolution of CT scanners are revealing details regarding the spatially and temporally varying contrast concentration in the vasculature, that were not evident before. These contrast dispersion patterns offer the possibility of extracting useful information about the hemodynamics from the scans. In the current presentation, we will describe experimental studies carried out with CT compatible phantoms of coronary vessels that provide insights into the effect of imaging artifacts on the observed intracoronary contrast gradients. In addition, we will describe a series of computational fluid dynamics studies that explore the dispersion of contrast through the ascending-descending aorta with particular focus on the effect of the aortic curvature on the dispersion patterns.

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