

Abstract Submitted  
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**Using vortex corelines to analyze the hemodynamics of patient specific cerebral aneurysm models** GREG BYRNE, FERNANDO MUT, JUAN CEBRAL, George Mason University — We construct one-dimensional sets known as vortex corelines for computational fluid dynamic (CFD) simulations of blood flow in patient specific cerebral aneurysm models. These sets identify centers of swirling blood flow that may play an important role in the biological mechanisms causing aneurysm growth, rupture, and thrombosis. We highlight three specific applications in which vortex corelines are used to assess flow complexity and stability in cerebral aneurysms, validate numerical models against PIV-based experimental data, and analyze the effects of flow diverting devices used to treat intracranial aneurysms.

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