

## A new two-dimensional blood flow model with arbitrary cross sections

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A new two-dimensional model for blood flows in arteries with arbitrary cross sections is derived. The model consists of a system of balance laws for conservation of mass and balance of momentum in the axial and angular directions. The main properties of the system are discussed, and a positivity-preserving well-balanced central-upwind scheme is presented. The merits of the scheme will be tested in a variety of scenarios, including numerical results of simulations using an idealized aorta model. This is joint work with César Rosales Alcantar.

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