The tissue of a tube-shaped organ constricts to pinch off into two chambers. The tissue is incompressible.

- a) Consider a step function for the constriction. How does each segment deform to maintain area? (le what is the motion of cells on the surface that results?)
- Is the tissue flow aligned with (or perpendicular to) the local axis of elongation?
- b) Consider an advancing Gaussian profile for the constriction. What is the flow field on the surface that results? C)
- d) What makes this solution counter-intuitive?

neck constriction (normal velocity)







Concrete problem







Open-ended question

Consider an elongated organ with a lumen inside, such as the embryonic gut tube containing yolk. The tube contorts into a chiral geometry akin to a helical tube.

- a) centerline?
- What cellular (mechanical) mechanisms could drive such kinematics? b)







What are in-plane deformations of a tube that generate intrinsic chirality – ie, coiling – of the tube's





