

Abstract Submitted
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Accurate evaluation of near-singular integrals in vortex sheet and Stokes flow MONIKA NITSCHKE, University of New Mexico — Inviscid vortex sheet or viscous Stokes flow can be efficiently computed using boundary integral formulations, which describe the fluid velocity by integrals over interfaces bounding fluid regions. For points on the interface, the velocity is given by singular integrals, whose computation is well understood. However, for points not on the interface, but near it, the velocity is given by near-singular which are difficult to compute. This talk presents a simple method to accurately compute these integrals. It is based on approximating the integrand by functions that capture the near-singularity and can be integrated exactly. The method is quite general and is applied here to planar vortex sheet and axisymmetric Stokes flow.

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