

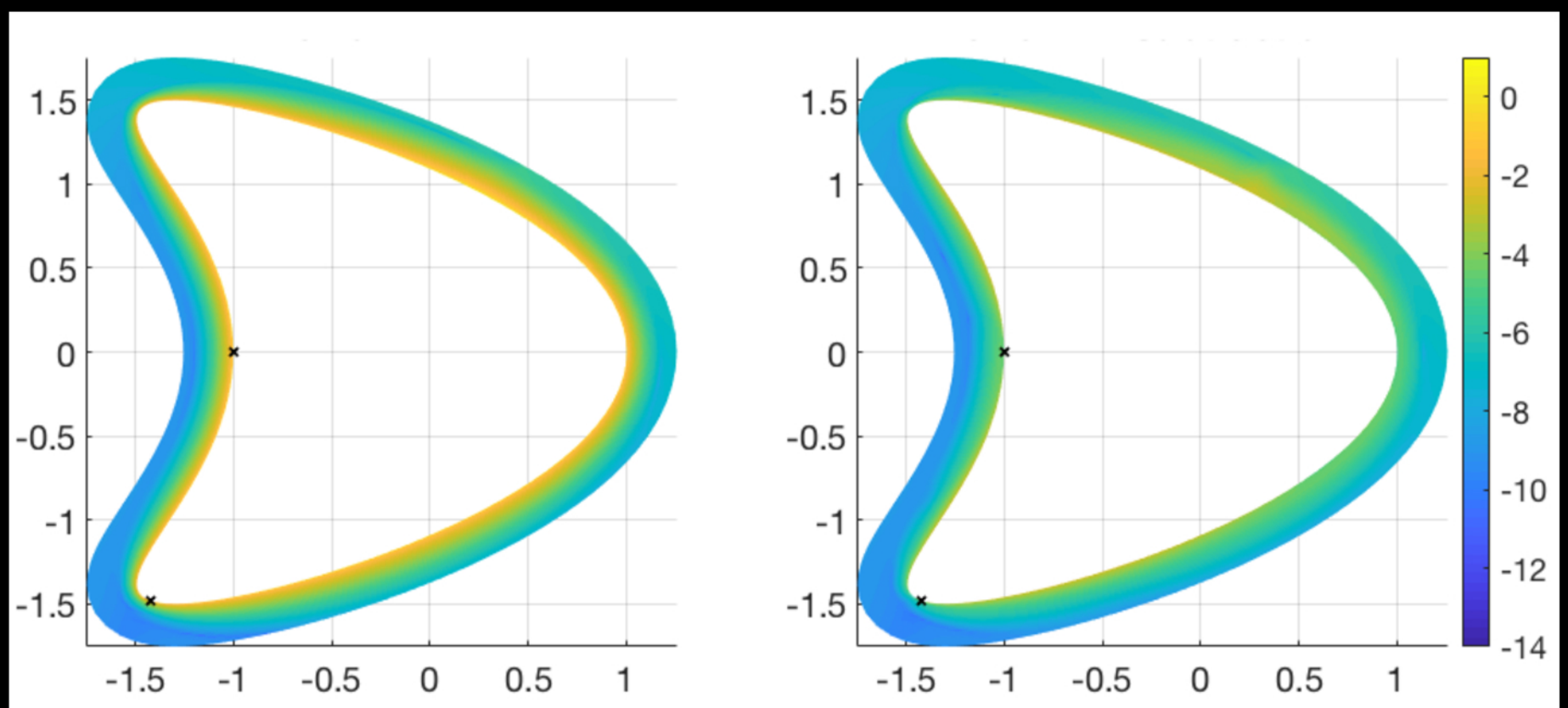


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## *Numerical methods for the close evaluation of layer potentials*

When using boundary integral equation methods, we represent solutions of a linear, partial differential equation as layer potentials. It is well-known that the approximation of layer potentials using quadrature rules suffer from poor resolution when evaluated close to (but not on) the boundary: this is the close evaluation problem. In this talk we present some techniques to address this challenge in two and three dimensions. In particular we perform an asymptotic analysis at the evaluation points, providing valuable insights in designing adapted numerical methods. Several numerical examples illustrating the efficiency of the technique will be provided. Additionally, we present ad hoc layer potential modifications to gain more accuracy.



### Virtual Colloquium

3:30 to 4:30 p.m. Eastern Time (U.S. and Canada)

Wednesday, September 30, 2020