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Gareth H. McKinley MIT

8   Potential Flows

8.1   The nature of solutions of the Navier-Stokes equations at high Reynolds numbers: decomposition of the flow into an inviscid irrotational outer flow with "slip at the wall" and a thin viscous boundary layer very near the wall; role of potential flow as the 'outer solution'

8.2   The Velocity Potential and the Stream Function. Linearity and superposition in the Laplace Equation. Finding the resultant pressure field as a constraint from the Euler equation.

8.3   The complex Potential *W* and the Cauchy-Riemann conditions.

8.4   Simple potential flow solutions to common geometries; the point source, point sink, the dipole,

8.5   Constructing more complex solutions by combining known solutions to simpler problems

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Reading: Kundu; Chapter 6 Sections 1-10.

Problems: Kundu, end of chapter 6; questions 6.1, 6.4, 6.8. .