

Vortex cusps

Volker Elling

Academia Sinica
E-mail: velling@math.sinica.edu.tw

Abstract

Vortex cusps are points where two vortex sheets of opposite circulation meet and form a cusp. Special cases are vortex sheets meeting a slip-condition wall tangentially, as observed in numerous types of Mach reflection. We discuss modelling, numerical approximation and construction of such cusps for incompressible Euler. In particular we give formulas for the cusp exponents as functions of the problem parameters. Numerical schemes are proposed and evaluated by their ability to produce cusps with the correct exponents.