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Compressible Vortex Sheets/Entropy Waves and Free Boundary Problems

Abstract: Compressible vortex sheets/entropy waves are fundamental waves, along with shock and rarefaction waves, in entropy solutions to multidimensional hyperbolic systems of conservation laws. Understanding the behavior of compressible vortex sheets/entropy waves is an important step towards our full understanding of fluid motions and the behavior of entropy solutions.

In this talk, we will show how the existence and stability of compressible vortex sheets/entropy waves can be formulated as a free boundary problem and will discuss some recent developments in the study of such a problem for compressible vortex sheets/entropy waves in multidimensional gas dynamics and magnetohydrodynamics. Further remarks, trends, and open problems in this direction will also be addressed.