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*Structural stability of subsonic steady-state for Euler-Poisson equations with sonic boundary*

In this talk, I first review the subsonic/supersonic/transonic steady-states for Euler-Poisson equations for semiconductor device with sonic boundary, then I will present how these physical solutions are affected by the doping profile, and the structural stability of these steady-states with a small perturbation of the doping profile. The singularities for the structural stability come from the boundary and the transonic point at the sonic line. The weighted energy method is introduced to overcome the singularities.