Hydrodynamic Limit of the Boltzmann Equations

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We will overview different recent results on the subject. Indeed, after the work of C. Bardos, F. Golse and D. Levermore of 1989 a lot of difficulties were left open about a rigourous derivation and we will overview how some of them were solved. Then, we will explain more the case of a bounded domain. In particular, we will consider the Boltzmann equation in a bounded domain with different types of (kinetic) boundary conditions and derive the Stokes-Fourier system with different type of (fluid) boundary conditions when the main free path goes to zero.