# From Boltzmann to Navier-Stokes, a variation on a theme by Claude Bardos and Seiji Ukai

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In a celebrated paper in 1991, Claude Bardos and Seiji Ukai proved a global in time, strong convergence result from the (conveniently rescaled) Boltzmann equation in $\mathbb{R}^n$ to the Navier-Stokes equations, under a smallness condition on the initial data and outside an initial time layer. In this talk I will present an extension of the result, obtained in 2020 together with Isabelle Tristani : the convergence is shown to hold as long as there is a strong solution to the Navier-Stokes equation, regardless of its size. In a recent work with Kleber Carrapatoso and Isabelle Tristani, we also improve slightly the functional setting, which can be devised to be as close as possible as the one known for Navier-Stokes (which is less demanding than for Boltzmann).
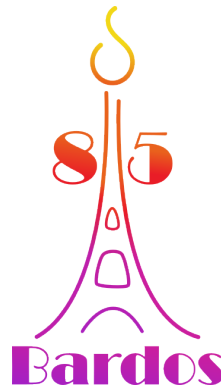
In honor of Claude Bardos's 85th birthday