Padmanabhan Sundar* (psundar@lsu.edu), Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803, and Martin Friesen and Barbara Rüdiger. The Boltzmann-Enskog process for hard and soft potentials.

The density of a moderately dense gas evolving in a vacuum is given by the solution of the Boltzmann-Enskog equation. The stochastic process that corresponds to the weak form of the equation is identified with the solution of a McKean-Vlasov equation driven by a Poisson random measure. Based on a system of interacting particles with binary collisions, the existence of an Enskog process is established for a wide class of collision kernels. A suitable coupling inequality leads to a proof of uniqueness and stability of solutions, under certain moment conditions. (Received August 12, 2019)