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P. Sundar* (psundar@lsu.edu), Department of Mathematics, Lockett Hall, Louisiana State University, Baton Rouge, LA 70803. *The Enskog process for hard and soft potentials*. Preliminary report.

The density of a moderately dense gas evolving in a vacuum is given by the solution of an Enskog equation. The stochastic process that corresponds to the Enskog equation is identified as the solution of a McKean-Vlasov equation driven by a Poisson random measure. Based on a suitable particle approximation with binary collisions, the existence of an Enskog process is established for a wide class of collision kernels. A suitable coupling inequality is shown which leads to a proof of uniqueness and stability of solutions to the Enskog equation and the Enskog process. This is a joint work with B. Ruediger and M. Friesen. (Received September 25, 2018)