

Abstract: We present recent results on the tail behavior for solutions to the homogeneous Boltzmann equation for variable hard potentials. More precisely, we discuss the generation and propagation of  $L^1$  and  $L^\infty$  exponentially weighted estimates and the relation between them. In the case of non-integrable angular cross section (i.e. without Grad's cutoff condition), the tails that are propagated depend on the singularity rate of the angular cross-section. For some of those rates the corresponding functional weights are super-Gaussians, and for other singular rates the weights are Mittag-Leffler functions which can be viewed as fractional power series behaving asymptotically as super-Gaussians as well. This is work in collaboration with Ricardo J. Alonso, Irene M. Gamba and Natasa Pavlovic.