THE RARE INTERACTION LIMIT IN A FAST-SLOW MECHANICAL SYSTEM

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ABSTRACT. Gaspard and Gilbert(2008) suggested a two-step strategy to derive the 'macroscopic' heat equation from the 'microscopic' kinetic equation. Their model consisted of a chain of localized and rarely interacting hard disks or balls. For a paradigm billiard model - realizing the first, truly dynamical part of the GG-strategy - we obtain the 'mesoscopic' master equation describing a Markov jump process for the energies of the particles. (Joint with P. Bálint, P. Nándori and IP. Tóth; N. B.: my 2013 seminar was related to the second, probabilistic part of the GG-program.)