

BI-CO MATHEMATICS COLLOQUIUM

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“Mathematics of the Bad Bounce”

Monday, October 31, 2011

Talk at 4:00 – KINSC E309

Tea at 3:00 – KINSC Math Lounge, H208

Abstract: When a gas particle impacts a surface, it tends to bounce in surprising ways. The specifics of this microscopic scattering behavior affects macroscopic properties of a gas sample, like diffusivity in a long tube. To study this behavior, we impose a geometric structure on the scattering surface and the particle so that complete knowledge of the dynamical variables before impact would predict the outcome of an impact. We then treat the pre-impact value of some of these variables as random; this produces a random process called a Markov chain that models scattering. We'll discuss several versions of this basic model and describe some recent results.

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