One–dimensional Fokker–Planck equations and functional inequalities for heavy tailed probability densities.

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Abstract

We present and discuss connections between one-dimensional Fokker-Planck equations with variable diffusion coefficients and one-dimensional Poincaré and logarithmic Sobolev inequalities satisfied by the probability densities with polynomial decay which are stationary states of these equations. As a main example, we consider inequalities satisfied by inverse Gamma densities, taking values on \mathbb{R}^+ . We will also discuss some generalizations to the *n*-dimensional case.

The talk is based on joint works with Ada Pulvirenti, Elide Terraneo and Giuseppe Toscani.