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IMBM PROBABILITY SEMINAR

SCALAR CONSERVATION LAWS WITH MARKOV INITIAL DATA

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Abstract

In the 1990s it was discovered that Burgers' equation $\rho_t + \rho\rho_x = 0$ interacts nicely with stochastic initial data. This observation is due to several authors, beginning with special cases and alternative notions of solution, culminating with the 1998 work of Jean Bertoin. This paper showed that if $\rho(x, 0)$ is a Lévy process without positive jumps, then for fixed $t \geq 0$ the solution $\rho(x, t)$ has the same property, and gave a description for the evolution of the Laplace exponent. Extending results of this type to more general scalar conservation laws $\rho_t + H(\rho)_x = 0$ was a challenge considered by Menon and Srinivasan in 2010, who conjectured a closure property for certain Feller processes with an evolution described (equivalently) by either a kinetic equation or a Lax pair. In this talk we discuss ongoing efforts to verify this conjecture.

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Time: 11:00-12:00

Place : IMBM Seminar Room, Boğaziçi University South Campus



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