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Hölder continuity property of the densities of SDEs with singular drift coefficients. (English)

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Summary: We prove that the solution of stochastic differential equations with deterministic diffusion coefficient admits a Hölder continuous density via a condition on the integrability of the Fourier transform of the drift coefficient. In our result, the integrability is an important factor to determine the order of Hölder continuity of the density. Explicit examples and some applications are given.

MSC:

60H10 Stochastic ordinary differential equations (aspects of stochastic analysis)
60H07 Stochastic calculus of variations and the Malliavin calculus

Keywords:

stochastic differential equations; Malliavin calculus; Hölder continuity; non-smooth drift; density function; Fourier analysis

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