



# Bifurcations of stochastic differential equations with singular diffusion coefficients

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In this article, we address the dynamics and bifurcations of a wide class of stochastic differential equations around singular points where both the drift and diffusion functions vanish. We apply these results to stochastic versions of the pitchfork, Hopf and saddle-node bifurcations. According to the Hölder coefficient of the diffusion function around the singular point, we identify different regimes, and the multiplicative noise case appears as a singular transition.

Subjects: **Probability (math.PR)**; Dynamical Systems (math.DS)

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