

Numerical modeling for stochastic oscillators

Carmela Scalone @ (University of L'Aquila), Raffaele D'Ambrosio
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Scientific literature provides several models describing the dynamics of different types of oscillators, both in deterministic and stochastic setting. The majority of the examples of stochastic oscillator are obtained by introducing a *noisy ingredient* in an underlying deterministic model. This noisy component may be an additive and/ or a multiplicative noise, a random frequency, a random damping, and so on (see [1] and references therein for a survey). A numerical issue typically investigated in this setting is the attitude of classical numerical schemes for SDEs to preserve of long term properties of particular oscillators, see [2]. The variety of models inspires the construction of specific methods to solve particular stochastic equations, which describe oscillatory dynamics, see [3]. We present our results in terms of a study of conservation, see [4], and of providing targeted methods for very popular examples of oscillators, see [5, 6].

References

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