



Prof. Dr. Gabriel J. Lord

Radboud University, Nijmegen

## Bifurcations and Uncertainty in Mean Square

We will consider the dynamics of dissipative systems with stochastic forcing and focus on mean-square stability to examine uncertainty. First we examine when the stochastic system is mean-square dissipative. Next we will examine the linearised system and state conditions ensuring that perturbations of a linear system with affine noise are bounded. We then relate the mean-square dynamics of the nonlinear and linearised systems. The approach gives a straightforward deterministic method to examine the effects of stochastic forcing on the stability of equilibria of deterministic systems and to obtain bifurcation diagrams that could be included into standard numerical continuation packages. The idea is illustrated numerically on some standard examples from dynamical systems and some examples arising from computational neuroscience.

Das Kolloquium wird von Prof. Dr. Oliver Ernst geleitet.

**Zeit:** Donnerstag, 28.05.2026, 16:00 Uhr  
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