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**Ergodicity of stochastic periodic systems**

**Abstract**

In this talk, first I will talk about the notion of random periodic processes and periodic measures, their “equivalence” and ergodicity. Then I will introduce the idea of Poincare sections, PS-ergodic and PS-mixing which are key tools to study the ergodicity of stochastic periodic systems. I will present results including: a theorem that PS-ergodic implies ergodic; an observation of purely imaginary eigenvalues of infinitesimal generator of the Markovian semigroup in random periodic regime; the law of large numbers. This is based on a joint work with C. Feng.