WORKING GROUPS PDE

DATE: MONDAY, SEPTEMBER 26, STARTING FROM 15:00 [1]

Convergence of numerical schemes for the 1-d stochastic wave equation

AURORA MARICA

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based on the paper J.B. Walsh, On numerical solutions of the stochastic wave equation, Illinois J. Math., 50(1-4)(2006), 991-1018,

We will present the convergence of order $h^{1/2}$ in any L^p-norm of a fully discrete finite difference scheme for the stochastic 1-d wave equation. The scheme is constructed on an uniform grid with equal time and space steps. The continuous solution of the wave equation belongs to the class of Holder functions of exponent 1/2, so that the convergence rate is optimal. We will compare these results with the existing ones in the deterministic case.

DATE: MONDAY, SEPTEMBER 26, NOT BEFORE 15:30

Controllability of the phase transition Mulins-Sekena equation: the spherical case

LEYTER POTENCIANO

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We are studying a dynamical system that describes the behavior of the radius of a finite number of spherical particles in $\mathbb{R}^n$, the so called Monopole model. The dynamics of this model evolves so that some radius grow (they cannot grow arbitrary, because they satisfies a conservation law) and others radius decrease (radius can disappear, i.e. singularities occur). This is know as Ostwald ripening.

In this talk we present some knows results concerning to the existence and uniqueness of solutions as well the continuous dependence with respect to the inicial data. Finally we show the local controllability at the unstable equilibrium point.

[1] The presentation will last about 30 minutes + further questions and discussions