

Revised

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PDEs on Manifolds and Volume Growth

Professor Alexander Grigoryan Universität Bielefeld

Abstract: The subject of the course is the relations between global properties of solutions of some elliptic and parabolic PDEs on Riemannian manifolds and the volume growth function.

The following topics will be covered.

- 1. Parabolicity of manifolds and recurrence
- 2. Stochastic completeness
- 3. Liouville properties of harmonic functions
- 4. Bounded solutions of Schrödinger equations
- 5. Positive solutions to semi-linear elliptic PDEs
- 6. Lower bounds of the heat kernel
- 7. Upper bounds of the heat kernel
- 8. Biparabolicity

Date(s) and Time:

Lecture 1: 28 March 2025 (Friday) at 2:30 p.m. – 4:30 p.m.

Lecture 2: 3 April 2025 (Thursday) at 2:30 p.m. – 4:30 p.m.

Lecture 3: 10 April 2025 (Thursday) at 2:30 p.m. – 4:30 p.m.

Venue: Rm 222, Lady Shaw Building,

The Chinese University of Hong Kong, Shatin

All are Welcome!