S4B1 – Graduate Seminar on Analysis - Heat Flow on Metric Spaces

Monday, 14.15 via zoom, from October 26, on.

The seminar will follow the manuscript “Heat flow on metric spaces” which is available on request (just ask for the sciebo-link via e-mail to eva.kopfer@iam.uni-bonn.de).

The suggested topics for the talks are:

1. 1.1 – 1.3: Minimal weak upper gradient, energy
2. “”
3. 2.1 – 2.3: Laplacian, heat semigroup
4. “”
5. 2.4: Infinitesimally Hilbertian spaces
6. 3 + 4: From mm-spaces to Dirichlet spaces and vice versa
7. “”
8. 5.1: Unit propagation speed
9. 5.2: Bounds for spectrum and essential spectrum
10. 5.3 + 5.4: Criteria for recurrence and conservativeness [4]
11. 6.1 + 6.2: Neumann and Dirichlet boundary conditions
12. 6.3: Gluing [3]
13. 8: Harnack-type Dirichlet spaces [2], chapter 2
14. “”

Further references are

[1] Luigi Ambrosio, Nicola Gigli, and Giuseppe Savaré: “Calculus and heat flow in metric measure spaces and applications to spaces with Ricci bounds from below”, Invent. Math. 195 (2014), no. 2, 289-391.
[2] Pavel Gyrya and Laurent Saloff-Coste. “*Neumann and Dirichlet heat kernels in inner uniform domains*”. Société mathématique de France, 2011.
[3] Angelo Profeta and Karl-Theodor Sturm. “Heat flow with Dirichlet boundary conditions via optimal transport and gluing of metric measure spaces”, arXiv:1809.00936 (2018).
[4] Karl-Theodor Sturm. “Analysis on local Dirichlet spaces. I. Recurrence, consevativeness and Lp-Liouville properties”. *Journal für die reine und angewandte Mathematik* 456 (1994): 173-196

Preliminary meeting: Thursday 16.7., 16.15 via Zoom
Meeting-ID: 917 1499 4184
Passwort: 969535