GEOMETRIC MEASURE THEORY

Yerevan State University, 6–9 July 2027

LIST OF PROPOSED TOPICS

A. CONFORMAL DIMENSION OF RANDOM FRACTALS

A1. *On the duality between p-modulus and probability measures* (Ambrosio, Di Marino, Savaré).
https://arxiv.org/abs/1311.1381

A2. *Fractal percolation and quasisymmetric mappings* (Rossi, Suomala).
https://arxiv.org/abs/1905.11080

A3. *Conformal dimension of the Brownian graph* (Binder, Hakobyan, Li).
https://arxiv.org/abs/2309.02350

B. INTERACTIONS BETWEEN CONFORMAL GEOMETRY AND RIEMANN SURFACES

B1. *Conformal dimension and Gromov hyperbolic groups with 2–sphere boundary* (Bonk, Kleiner).
https://msp.org/gt/2005/9-1/gt-v9-n1-p07-s.pdf

B2. *On local minimality of Hausdorff dimension for round limit sets* (Douba, Sambarino, Pallete).
https://arxiv.org/abs/2610.20358

B3. *The Brownian loop measure on Riemann surfaces and applications to length spectra* (Wang, Xue).
https://arxiv.org/abs/2406.09108

C. DESCENT AND CHAINING AS METHODS OF PROOF IN ANALYSIS

C1. *The method of descent and chaining*,
in *What a Proof Should Remember*, Chapters 2.1, 2.2 (Burstein, Iosevich, Krause)*

C2. *The John-Nirenberg inequality*,
in *What a Proof Should Remember*, Chapter 3 (Burstein, Iosevich, Krause)*

C3. *Bourgain's selection theorem*,
in *What a Proof Should Remember*, Chapter 5 (Burstein, Iosevich, Krause) *

C4. *Restricted isometry*
in *What a Proof Should Remember*, Chapter 6 (Burstein, Iosevich, Krause)*

D. ERDŐS SIMILARITY CONJECTURE

D1. *The geometric case of the Erdős similarity conjecture*,
in *What a Proof Should Remember*, Chapter 15.3 (Burstein, Iosevich, Krause)*

D2. *Erdős Similarity Problem via Bi-Lipschitz Embedding* (Feng, Lai, Xiong).
https://arxiv.org/abs/2312.01319

D3. *The Erdős similarity conjecture and Rajchman Measures* (Iosevich, Kulkarni, Mora Cuéllar, Rojas Aravena, Yavicoli). https://arxiv.org/abs/2609.04456

D4. *The Erdős similarity conjecture for two-fold sumsets with a geometric summand* (Mora Cuéllar, Iosevich, Kulkarni, Rojas Aravena, Yavicoli). https://arxiv.org/abs/2607.03584

∗ Relevant chapters from the forthcoming book *What a Proof Should Remember* (Burstein, Iosevich, Krause) will be distributed to selected participants.