M7 Geometric Analysis part 1

Organiser: Changyu Guo, *University of Jyväskylä*

1. Monodromy representations of branched coverings

Martina Aaltonen, *University of Helsinki*

A covering map $f : X \to Z$ between manifolds is a factor of such a normal covering map $q : Y \to Z$ that the deck-transformation group of q is isomorphic to the monodromy group of f. In this talk we see a ramification of this construction for a class of branched coverings between manifolds.

2. Weil-Petersson geometry on metrics with Poincaré singularities

Hassan Jolany, *University of Lille1*

In this talk I will explain Song-Tian-Tsuji approach for solving long-standing conjecture on finite generation of canonical ring. we strengthen the previous results of Song-Tian [1],[2],[3]. We give a logarithmic version of Song-Tian Program for

finding canonical metrics on K ahler manifolds.

[1] Jian Song; Gang Tian, The Kahler-Ricci flow on surfaces of positive Kodaira dimension, Inventiones mathematicae. 170 (2007), no. 3, 609—653.

[2] Jian Song; Gang Tian, Canonical measures and Kähler-Ricci flow, J. Amer. Math. Soc. 25 (2012), no. 2, 303-353,

[3] Hassan Jolany, Weil-Petersson geometry on metrics with Poincaré singularities, In prepration.

3. Images of porous sets under Sobolev mappings

Aapo Kauranen, *University of Jyväskylä*

I t is well known that mappings in Sobolev spaces $W^{1,n}$ may map sets of Lebesgue measure zero to sets of positive measure. This may happen even for porous sets.

On the other hand, under some assumptions on the modulus of continuity of the mapping it is true that images of porous sets will be sets of measure zero.

I will also mention the corresponding results in the context of Q-Ahlfors regular metric measure spaces.

4. Quasiconformal non-parametrizability of almost smooth spheres

Vyron Vellis, *University of Jyväskylä*

We show that for each $n \geq 3$ there exists a smooth Riemannian metric g on a punctured sphere $\mathbb{S}^n \setminus \{x_0\}$ for which the associated length metric extends to a length metric d of $\mathbb{S}^n$ with the following properties: the metric sphere $(\mathbb{S}^n, d)$ is Ahlfors n-regular and linearly locally contractible but there is no quasiconformal homeomorphism $(\mathbb{S}^n, d) \to \mathbb{S}^n$. This is a joint work with Pekka Pankka