Title: Higher dimensional cost and deficiency-gradient
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Bonn, 20th NRW topology meeting
November, 2013

If Γ is a finitely presented and residually finite group, we define the **deficiency-gradient** along a **chain** (decreasing sequence of finite index normal subgroups with trivial intersection) as

$$\mathrm{def}-\mathrm{grad}\,(\Gamma;(\Gamma_n)_n) := \lim_{n\to\infty} \frac{\mathrm{def}(\Gamma_n)}{[\Gamma:\Gamma_n]}$$

where $\mathrm{def}(G)$ denotes the deficiency of G. This is an analogue of the rank-gradient introduced by M. Lackenby.

The goal of my talk is to explain how we compute the deficiency gradient along any chain for such groups as

$$\begin{array}{ll} \Gamma = \mathrm{MCG}(\Sigma_{g,p}), \quad g>2 & \mathrm{def}-\mathrm{grad}\,(\Gamma;(\Gamma_n)_n) = 0 \\ \Gamma = \mathrm{SL}(d,\mathbb{Z}), \quad d>3 & \mathrm{def}-\mathrm{grad}\,(\Gamma;(\Gamma_n)_n) = 0 \\ \Gamma \text{ a limit groups} & \mathrm{def}-\mathrm{grad}\,(\Gamma;(\Gamma_n)_n) = \beta_1(\Gamma) \end{array}$$

where β_1 is the first ℓ^2-Betti number.

Indeed, we identify the deficiency gradient as a **higher dimensional** 2-**cost** defined as the optimum deficiency of "measured leaf-simply-connected laminations" spanning the "action of Γ on the projectiv limit of the equiprobability preserving multiplication actions $\Gamma \curvearrowright \Gamma/\Gamma_n$".

This is joint work with M. Abert.