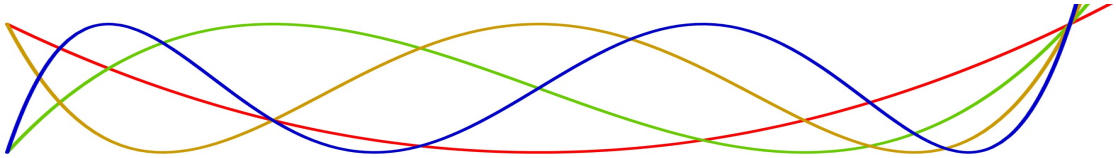

Analytic seminar of Chebyshev Laboratory

13:40 Thursday, October 11, 2018.

Chebyshev Laboratory, 413.

Mikhail Dubashinskiy

On spectra of hyperbolic surfaces without thin handles

Let X be a hyperbolic surface of genus $g \geq 2$. It is known that first $2g-2$ eigenvalues of Laplace–Beltrami operator $-\Delta$ on X may turn to be arbitrarily small. In fact, such situation is related to the existence of thin handles on X, that is, to degenerateness of injectivity radius R_{inj} of X. We prove a lower eigenvalue estimate under assumption on R_{inj}:

$$\lambda_{\lceil \varepsilon g \rceil} \geq c(R_{\text{inj}}) \cdot \varepsilon^2$$

for any $\varepsilon \leq 2$.

The argument is based on Buser's theorem on triangulation of controlled size.