

Computations using the Selberg Trace Formula

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This course will focus on computations using the Selberg Trace Formula for $\mathbf{SL}(2, \mathbb{Z})$ and congruence subgroups. The following topics will be discussed:

1. The proof of Selberg's trace formula for an arbitrary (cofinite) Fuchsian group. (I'll try to give as detailed account as is possible in the given time.)
2. The case of $\mathbf{SL}(2, \mathbb{Z})$ and congruence subgroups.
3. Connections with class numbers.
4. The STF for Hecke operators.
5. Applying STF for spectral computations.