*Maass waveforms for **SL**(2,Z) and subgroups, from a computational point of view*
Fredrik Strömberg

During this mini course we will discuss spectral theory and Maass waveforms for ***SL**(2,Z)* and its congruence subgroups. A lot of focus will be on computational aspects. The following topics will be discussed:
1. Spectral theory for hyperbolic surfaces with finite area (i.e. for co-finite Fuchsian groups).
2. The physical interpretation of Maass waveforms and quantum chaos.
3. Maass waveforms for congruence subgroups of SL(2,Z).
4. Computational aspects of Maass waveforms. Which methods are available and what are the advantages/ disadvantages of different approaches.

If time permits I will also mention something about one of the following topics:
1. Maass waveforms on non-congruence subgroups of PSL(2,Z).
2. Connections between Maass waveforms, period functions and cohomology.
3. Non-holomorphic Poincaré series and harmonic weak Maass forms.