



## Mathematics and CS Seminar

# Effective asymptotic for a sum of class numbers

**Giacomo Cherubini**

Alfréd Rényi Institute of Mathematics in Budapest

Host: Tim Browning

For positive discriminants  $d$ , let  $h(d)$  and  $R(d)$  be class number and regulator of the real quadratic field  $\mathbb{Q}(\sqrt{d})$ . In 1944 Siegel computed the asymptotic for the sum of  $h(d)R(d)$ , where one orders the summands by increasing discriminants  $d$ . If we change ordering and we list  $h(d)$  according to the size of the regulators  $R(d)$ , it is possible to prove a different asymptotic, and to (partially) separate the information attached to  $h(d)$  and to  $R(d)$ . In the talk I will explain how this problem is related to the prime geodesic theorem and to the spectral theory of automorphic forms, which provides useful techniques to prove an asymptotic with strong bounds on the error term. I will also quickly explain how the methods generalize to study certain class numbers of quadratic forms over Gaussian integers.

**Thursday, May 16, 2019 11:00am - 12:00pm**

Raiffeisen Lecture Hall, Central Building



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.