ZEROS OF EISENSTEIN SERIES

Modular forms, widely known for their key role in the proof of Fermat's Last Theorem, have proved to be intricately related to deep results in many areas of number theory, combinatorics, algebraic geometry, topology, and mathematical physics. Typical first examples of modular forms are Eisenstein series, which are natural building blocks of spaces of modular forms.

The zeros of Eisenstein series have many intriguing properties. For example, the locations of zeros of classical Eisenstein series are related to special values of the Riemann zeta function. In addition, their location has enabled the construction of noncongruence cusp forms.

In this talk, we will introduce modular forms and explore the location of zeros of Eisenstein series. We will do this both from the classical perspective on the full modular group Γ, and also in a generalized setting on the congruence subgroup $\Gamma(2)$, a genus zero subgroup with relatively simple fundamental domain. Further properties of zeros of Eisenstein series will also be discussed, including separation properties and transcendence.