

Algorithm Relating to Finite Index Subgroups of Modular Group

Bao Pham

The modular group $SL_2(\mathbb{Z})$ has always been an important in number theory as it gives rise to modular forms, and subsequently, a relationship between modular forms and elliptic curves through the modularity theorem. In this talk, I will talk about finite index subgroups of the modular group. These finite index subgroups have certain invariants and properties that has been investigated by people such as Cremona, Hsu, and Vidal. I will discuss some algorithms related to these finite index subgroups and, if time permits, the extension of these algorithms to general arithmetic triangle groups.