LING LONG, Iowa State University

On the Coefficients of Noncongruence Modular Forms

By a theorem of Belyi, it is known that meromorphic functions on compact smooth orientable Riemann surfaces defined over the algebraic closure of $\mathbb{Q}$ are modular functions for finite index subgroups of the modular group. Predominately, most of these modular functions are for noncongruence subgroups. It was observed by Atkin and Swinnerton-Dyer that the Fourier coefficients having unbounded denominators is a clear distinction between noncongruence and congruence modular forms. However, it is unknown whether the coefficients of a genuine noncongruence modular form (with algebraic coefficients) will have unbounded denominators.

In this talk, we will discuss the unbounded denominator property satisfied by the coefficients of several types of noncongruence modular forms, including some meromorphic functions parameterizing Calabi–Yau manifolds.