MODULAR FORMS AND CURVES OVER FINITE FIELDS

Abstract. Modular forms (for genus 1) on SL(2,Z) are functions on the complex upper half plane with an enormous amount of symmetry. They encode a lot of arithmetic information. One can study these modular forms using explicit functions. This, however does not work for their higher- dimensional counterparts (for genus g¿1). We will show that by counting algebraic curves over finite fields one can obtain a lot of information about modular forms for genus 2 and 3. This is joint work with Jonas Bergstroem and Carel Faber.