

Drinfeld cusp forms of prime level: structure and slopes

MARIA VALENTINO

Università della Calabria

ABSTRACT

Drinfeld modular forms are an analog of complex modular forms for function fields of characteristic $p > 0$. Even though basic definitions and notions of Drinfeld forms were introduced in the eighties, some fundamental and crucial structural questions have not been answered yet in the positive characteristic setting: diagonalizability of Atkin-Lehner operator, distribution of slopes and structure of the space of modular forms as direct sum of newforms and oldforms. The main obstructions are the lack of an adequate analog of Petersson inner product and the extremely involved relation between the action of the Hecke operators and the Fourier expansions. In this talk we shall see how we try to overcome the problem and to define newforms and oldforms for Drinfeld cusp forms of prime level. In particular, when the prime is of degree one we shall address all the above mentioned questions: we formulate precise conjectures and provide proofs in some special cases. This is a joint work with A. Bandini.