

1163-14-903

Daxin Xu* (daxin.xu@amss.ac.cn), Morningside Center of Mathematics, Chinese Academy of Sciences, 55 Zhongguancun East Road, Beijing, Beijing 100190, Peoples Rep of China. *Bessel F -isocrystals for reductive groups.*

I will first review the Frobenius structure on the Bessel differential equation

$$\left(x \frac{d}{dx}\right)^2 u - xu = 0,$$

whose Frobenius traces are the Kloosterman sums

$$\text{Kl}(a) := \sum_{xy=a \in \mathbb{F}_p^\times} \exp\left(\frac{2\pi i}{p}(x+y)\right).$$

Recently, there are two generalizations of this story (corresponding to GL_2 -case) for reductive groups: one is due to Frenkel and Gross from the viewpoint of the Bessel differential equation; another one, due to Heinloth, Ngô and Yun, uses the geometric Langlands correspondence to produce generalized Kloosterman sheaves on \mathbb{G}_m . I will report my joint work with Xinwen Zhu, where we study the p -adic aspect of this theory and unify previous two constructions. If time permits, I will talk about the ramification of generalized Kloosterman sheaves at infinity from the p -adic aspect. (Received September 14, 2020)