

Arithmetic stability of higher rank Artin-Schreier-Witt towers

Abstract: Let $q = p^a$, K the rational function field over the field of q elements, and G be the absolute Galois group of K . For any continuous p -adic representation of G , one can construct a tower of finite Galois extensions of K . A conjecture of Daqing Wan states that if this representation "comes from algebraic geometry", then the slopes of the zeta functions of the fields in this tower have a stable behavior. In general, Wan's conjecture is wide open and already very hard when this tower is an Artin-Schreier-Witt tower. In this talk, we will discuss some recent progress related to Wan's conjecture for higher rank Artin-Schreier-Witt towers.