

1116-14-1366

Yuan Wang* (ywang@math.utah.edu). *Generic vanishing and classification of irregular surfaces in positive characteristics.*

Classification of surfaces is a very classical topic. A classification for surfaces with Kodaira dimension $-1, 0$ and 1 , known as the Enriques-Kodaira Classification, has been given in the last century. But after that the classification of surfaces of general type is much more difficult. There were results in characteristic 0 made between 1982 and 2003. My recent work provides a classification result for surfaces of general type with Euler characteristic 1 and Albanese dimension 4 in positive characteristics, and to the best of my knowledge this is the first explicit classification result for surfaces of general type in positive characteristics. The construction of this result is inspired by a paper of Hacon and Pardini but contains a lot of new ideas, including the construction of a generic vanishing theorem for surfaces that lift to $W_2(k)$, the second Witt vector space. In my talk I will present the generic vanishing theorem and explain how it helps in studying the structure of irregular surfaces. (Received September 19, 2015)