

1086-14-2212 **Jia Wan*** (wan2235@vandals.uidaho.edu), 1218 S.Main #602, Moscow, ID 83843. *On the Secant Defectivity and the Waring's Problems.*

Consider an irreducible, non-degenerate projective variety X . The k -th secant variety of X is the Zariski closure of the union of the linear spaces spanned by collections of k linearly independent points on X . One study of this object is centered around finding its dimension. Recently, scientists have shown more interest in this topic since the problem is strongly connected to questions in representation theory, coding theory, and combinatorics. In 1995, work by J. Alexander and A. Hirschowitz completed a project that was underway for over 100 years and confirmed the conjecture that finished the Waring's problem for forms. However, the problem is still unsolved in its generality. In this talk, I will explain techniques involved in classifying defective secant varieties of some classically studied varieties, its relation with generalized Waring's problems, as well as conjectures, open problems and some recent improvements we have achieved in this area. (Received September 25, 2012)