Stringy orbifolds

Yongbin Ruan

Abstract

Recently, there is a surge of activities to study the stringy properties of orbifolds. The stringy property has its origin in orbifold string theory counting the contribution from so called "twisted sector". Mathematically, it means that classical invariants such as Euler number, Betti number and cohomology have to be corrected by stringy contribution. Then, we obtain a new theory of orbifolds which we call "orbifold" Euler numbers, "orbifold" Betti numbers and "orbifold" cohomology and so on. There are many mathematical constructions associated with orbifolds. One example is the desingularization. Their classical theories are unrelated. However, on stringy level, they are unified to a single theory. Right now, this new subject of mathematics is undergoing explosive development. I will survey some of the recent advances.