Questions at the junction of algebraic and differential geometry inspired by string theory

Abstract:

String theory provides many fresh ideas for studying geometrical structures on manifolds. Some of them are guided by physical intuition and require a rigorous mathematical analysis and a proof of their existence. In this talk we will give a brief overview on some problems in algebraic and differential geometry which emerge out of string theory when combining information of metrics, submanifolds and bundles, and comment on a recent proof of an old conjecture by Witten.