

Title : Torsors on semistable curves and the problem of degenerations.

Abstract: Let G be an almost simple, simply connected algebraic group G over the field of complex numbers. In this talk I answer two basic questions in the classification of G -torsors on curves. The first one is to construct a flat degeneration of the moduli stack G -torsors on a smooth projective curve when the curve degenerates to an irreducible nodal curve. Torsors for a generalization of the classical Bruhat-Tits group schemes to two-dimensional regular local rings and an application of the geometric formulation of the McKay correspondence provide the key tools. The second question is to give an intrinsic definition of (semi)stability for a G -torsor on an *irreducible nodal curve*. The absence of obvious analogues of torsion-free sheaves in the setting of G -torsors makes the question interesting. This also leads to the construction of a proper separated coarse space for G -torsors on an *irreducible nodal curve*.