Institut Henri Poincaré

11 rue Pierre et Marie Curie, 75231 Paris cedex 05

String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 14 Mars 2024, 11:45

Osama Khlaif

University of Birmingham

Grothendieck lines in 3d SQCD and the quantum K-theory of the Grassmannian

In this talk I will revisit the correspondence between 3d $\mathcal{N}=2$ SQCD and the quantum K-theory of the Grassmannian variety Gr(N_c, n_f). 3d $N=2$ SQCD has gauge group $U(N_c)_{k,k+\ell N_c}$ and n_f chiral matter multiplets in the fundamental representation of $U(N_c)$. By analysing the moduli space of 3d vacua, we will fix the values of the Chern-Simons (CS) levels (k, ℓ) that give us 3d GLSMs that flow to 3d NLSMs with target Gr(N_c, n_f). Then, I will review the 3d A-model of these GLSMs and the relation between the correlation functions in this model and quantum K-theory ring of the Grassmannian. A standard basis of this ring is given by the Schubert classes. These are the classes of the structure sheaves of the Schubert subvarieties. I will show how one can construct half-BPS line operators in the 3d GLSM that flow to these classes in the IR. This talk is based on [arXiv : 2301.10753, 2305.00534, 2309.06980] with C. Closset.

Institut Henri Poincaré, salle 314, 3ème étage