



*Institute of Mathematical Research  
Department of Mathematics*

## **GEOMETRY SEMINAR**

# **Representations of Cohomological Hall algebras and Donaldson-Thomas theory with classical structure groups**

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### **Abstract**

Given a complex reductive group  $G$ , there is expected to be a generalization of DT theory whose goal is to count, in an appropriate sense, stable principal  $G$ -bundles over a Calabi-Yau threefold. The standard DT theory arises when  $G$  is a general linear group. I will present some recent results on such a generalization when  $G$  is a classical group using the framework of quiver representations. The main tool is a new class of representations of Kontsevich and Soibelman's cohomological Hall algebra. These representations have an explicit shuffle description making them amenable to combinatorial study. I will focus on a number of simple examples where the geometric and enumerative meaning of these representations is most clear.

Date: September 22, 2015 (Tuesday)

Time: 4:00 – 5:00pm

Place: Room 210, Run Run Shaw Bldg., HKU

*All are welcome*