

# SEMINARIO MAPHYAG

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***(Edinburgh)***

**Quantum Groups from  
Cohomological Donaldson-Thomas  
Theory**

***Friday 24 May - 12:00***

***Online:***

***<https://meet.google.com/njb-aigu-joa>***

In 2010, Kontsevich and Soibelman defined Cohomological Hall Algebras for quivers and potential as a mathematical construction of the algebra of BPS states. These algebras are modelled on the cohomology of vanishing cycles, which makes these algebras particularly hard to study but often result in interesting algebraic structures. A deformation of a particular case of them gives rise to a positive half of Maulik-Okounkov Yangians. The goal of my talk is to give an introduction to these ideas and if time permits; I will explain how for the case of tripled cyclic quiver with canonical cubic potential, this algebra turns out to be one-half of the universal enveloping algebra of the Lie algebra of matrix differential operators on the torus, while its deformation turns out to be one half of an explicit integral form of the Affine Yangian of  $\mathfrak{gl}(n)$ .

**MAPHYAG**