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Representation and Number Theory Seminar

(Derived blow-ups using Rees algebras and virtual Cartier divisors)

by

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(KTH Royal Institute of Technology)

Abstract:

The blow-up B of a scheme X in a closed subscheme Z enjoys the universal property that for any scheme X' over X such that the pullback of Z to X' is an effective Cartier divisor, there is a unique morphism of X' into B over X . It is well-known that the blow-up commutes along flat base change.

In this talk, I will discuss a derived enhancement B' of B , namely the derived blow-up, which enjoys a universal property against all schemes over X , satisfies arbitrary (derived) base-change, and contains B as a closed subscheme. To this end, we will need some elements from derived algebraic geometry, which I will review along the way. This will allow us to construct the derived blow-up as the projective spectrum of the derived Rees algebra, and state its functor of points in terms of virtual Cartier divisors, using Weil restrictions.

Date : March 29, (Tuesday)

Time : 4:00pm – 5:00pm (Hong Kong SAR)

Zoom link :

<https://cuhk.zoom.us/j/97838822137?pwd=ZTVvSC9abmNjR3RCcS9FTzJNTVhXdz09>

Meeting ID : 978 3882 2137

Passcode : sesame

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