



## Seminar/Talk

# Reduction by stages for affine W-algebras

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Host: Tamas Hausel

Affine W-algebras form a family of vertex algebras parametrised by nilpotent orbits in simple Lie algebras. These are algebraic structures generalising infinite-dimensional Lie algebras such as affine Kac-Moody algebras or Virasoro algebras. In this talk, I will present a joint work with Naoki Genra about "reduction by stages". Given two nilpotent orbits, in the same Lie algebra, satisfying some compatibility conditions, we prove that one of the corresponding W-algebras can be reconstructed as the quantum Hamiltonian reduction of the other one. Our approach is geometric, using the fact that each W-algebra is the quantisation of some Poisson variety, the Slodowy slice associated with the corresponding nilpotent orbit. As an application, I will present a sufficient condition on a pair of nilpotent orbits in type A to get a natural embedding of affine W-algebras. This is an analogue of the combinatorial rule established by Kraft and Procesi in their study of Slodowy slices in the 80's.

**Thursday, April 30, 2026 01:15pm - 03:00pm**

Office Bldg West / Ground floor / Heinzel Seminar Room (I21.EG.101)



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