

# Insalate di Matematica

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## Double affine Hecke algebras and their representations



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Google Meet meeting  
Università di Milano-Bicocca

### Abstract

Double affine Hecke algebras (DAHAs) were introduced by Cherednik in the late '80s to study Knizhnik-Zamolodchikov equations. They gained popularity as they were used by Cherednik himself to prove Macdonald's constant term conjecture about Macdonald polynomials. Since then, the theory of DAHAs has been connected to several areas of Mathematics, such as Geometry, Knot Theory, Quantum Algebra and Combinatorics. In the first part of the talk, we will see how to construct step by step the  $GL_n$  DAHA by gluing two copies of the affine Hecke algebra. We will then move on to focus our attention on some special DAHA representations and study the combinatorial objects that can be used to describe them. Finally, we will see how this class of representations is related to the theory of quantum groups and take a look at the most recent developments in this direction.



### Keywords:

DAHA · Quantum groups · Representation Theory

*"Obvious" is the most dangerous word in mathematics. - Eric Temple Bell*