

# ALGEBRA SEMINAR

## Homomorphisms of braid groups.

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Zoom

### Abstract

In the early 1980s Dyer-Grossman proved that every automorphism of the braid group is geometric, meaning that it is induced by a homeomorphism of the corresponding punctured disk. I'll discuss two recent generalizations. With Lei Chen and Kevin Kordek, we prove that every homomorphism from the braid group on  $n$  strands to the braid group on (up to)  $2n$  strands is geometric. With Kordek, we prove that every homomorphism from the commutator subgroup of the braid group to the braid group is geometric. Both results can be interpreted in terms of maps between spaces of polynomials. We will begin with some background, explain the statements of both theorems, and discuss the basic ideas behind both of the proofs.