

# Algebra/Topology Seminar

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## THE ACTION OF THE SYMMETRIC GROUP ON A GENERALIZATION OF THE FREE LIE ALGEBRA: A CATALANKE THEOREM

Thursday, November 30, 2017  
1:15 p.m. in ES-143

ABSTRACT. The free Lie algebra is a natural mathematical construction that is central in algebraic combinatorics and has applications in other fields. I will discuss a generalization of the free Lie algebra based on an  $n$ -ary commutator. The action of the symmetric group on its multilinear component generalizes the well-known representation  $Lie(\mathbb{k})$ . I will discuss results and conjectures about this generalization of  $Lie(\mathbb{k})$ , including a representation whose dimension is the Catalan number.