FRANCO SALIOLA, Université du Québec à Montréal

Left regular bands and Solomon's descent algebras

Inside the group algebra of a *finite Coxeter group* lives a highly exceptional subalgebra called the *descent algebra*, which has connections with combinatorics, representation theory, Lie algebras and random walks, to name a few. It has recently been described in geometric and semigroup theoretic terms as a subalgebra of the semigroup algebra of a *left regular band*. (The left regular band is the Coxeter complex with a geometrically defined product, and the subalgebra is the subalgebra that is invariant under the action of the Coxeter group.) This talk will describe how this semigroup can be used to understand the structure of the descent algebra, and how this leads to a description of the *quiver* of the descent algebra in type A and type B.