1084-05-371 **María Ronco*** (mariaronco@inst-mat.utalca.cl). *Hopf structures on shuffle algebras and shuffle operads.*

The set $\mathcal{T}$ of all planar rooted trees, equipped with the grafting operations, determines a monad on the category of graded modules. D. Ginzburg and M. Kapranov described nonsymmetric operads as algebras over this monad.

The associahedron or Stasheff polytope $\mathfrak{A}_n$ of dimension $n-2$ is the geometric realization of the poset of planar rooted trees with n leaves, equipped with the Tamari order. If we replace the planar rooted trees by the surjection maps between finite sets, we get another family of polytopes: the permutohedra, denoted $\mathfrak{P}_n$. The grafting of planar rooted trees is replaced in this case by the action of shuffles. In a joint work with J.-L. Loday, we proved that the set of all surjective maps with substitution gives rise to a monad on arity graded modules, and an algebra over this monad is called a *permutad*.

The first part of the talk will be devoted to describe all the algebraic structures related to the associahedra. In the second part, we shall explain all the results we were able to extend to the permutohedron, as well as some questions and work in progress arising from them. (Received September 05, 2012)