AN INTRODUCTION TO KHOVANOV HOMOLOGY

Khovanov homology is a powerful link invariant introduced by Mikhail Khovanov at the end of the last century. This bigraded homology, which categorifies Jones polynomial, was nicely interpreted by Oleg Viro in a purely combinatorial way in terms of enhanced states. In this talk we will review the main properties of Khovanov homology, starting from this combinatorial construction, and presenting some explicit examples. Moreover, in the second part of the talk, I will present our geometric realizations of Khovanov homology in terms of both a simplicial complex and a semisimplicial set constructed explicitly from the link diagram, and sketch some new results about the presence of torsion in Khovanov homology.