

Abstract

Since their invention by Fomin-Zelevinsky in 2002, cluster algebras have shown up in an ever growing array of subjects in mathematics (and in physics). In this talk, we will approach their theory starting from elementary examples. More precisely, we will see how the remarkable integrality properties of the Coxeter-Conway friezes and the Somos sequence find a beautiful unification and generalization in Fomin-Zelevinsky's definition of cluster variables and their Laurent phenomenon theorem. Motivated by the periodicity of Coxeter-Conway friezes, we will conclude with a general periodicity theorem, whose proof is based on the interaction between discrete dynamical systems and quiver representations through the combinatorial framework of cluster algebras.