

Given a polynomial optimization problem, an important question to answer is whether it is solvable, that is, if a global minimizer exists. Coercivity of the objective function provides a sufficient condition for the existence of a minimizer. In this talk we study the coercivity property of multivariate polynomials by analyzing the structure and the properties of their Newton polytopes. Finally, we use our results to study global diffeomorphism property of polynomial maps. The latter is connected to the Jacobian Conjecture, which is still open.