

In this thesis we provide basic algorithms for factorization of polynomials over quaternions and dual quaternions. In the case of quaternions, we translate the art of finding roots of given polynomial into factorization. In the case of dual quaternions, we analyse the case of motion polynomials. We show when it is possible to find a factorization of such polynomial into linear terms and give a workaround if it is not. All of this is supplied with geometric interpretations. More specifically, we use the factorizations to construct mechanical linkages.