

Main topic of this thesis is solving interval linear systems. At first, we describe the structure of the solution set, which is the basis of several algorithms for computing interval hull of the solution set. Although computation of the interval hull is NP-hard problem, there exist algorithms which are not a priori exponential. One such algorithm is Jansson's algorithm which we implemented in MATLAB with utilisation of the interval toolbox INTLAB. We optimised the method and compared it to related implementations. Test results show that our implementation performs better in comparison on interval systems with solution set that is intersecting with many orthants. The opposite holds true when the amount of visited orthants is low. We describe a method of verified linear programming, which is necessary for producing rigorous results.