

The subject of the present Master Thesis is a comparison of numerical solution of convection-diffusion equations approaches using stabilization and adaptive methods. Firstly the basic aspects and thoughts of employed numerical method - Galerkin finite element method - are summarized. Consequently the most common kinds of stabilization methods for spurious oscillations diminishing are defined (esp. SUPG method). Next section is devoted to a posteriori error estimations and adaptive refinement of triangulation which could help to diminish the spurious oscillations too. All mentioned methods and techniques are implemented and finally tested on the sample examples.