

The scope of this thesis is in the time-dependent formulation of the two dimensional model of resonant electron-diatomic molecule collisions in the range of low energies. In its time independent form the model was previously numerically solved without the Born-Oppenheimer approximation with use of modern tools such as the finite element method with discrete variable representation (FEM-DVR) or exterior complex scaling (ECS). Within the scope of this model we numerically solve the evolution problem, with use of the Crank-Nicolson method and the Padé approximation. Later we evaluate the cross section of the elastic and some inelastic processes with the correlation function approach. At last we make a comparison of the evolution and the cross sections to time dependent formulation of the local complex potential approximation of the electron-molecule collisions.