1062-35-34 **Leonid A. Muravey*** (pm@mati.ru), 121552. Orshanskaya, 3 , Moscow, Russia., Moscow, Moscow 121552, Russia, and **Victor M. Petrov** (pm@mati.ru), 121552. Orshanskaya, 3 , Moscow, Russia., Moscow, Moscow 121552, Russia. *Coefficient Control for some nonlinear hyperbolic equation.*

Manufacture of VLSI, with the submicron elements determines the necessary of applying the up-to-date methods for creation of functional layers, such as XR and others for the protective mask, various methods, including the ion-beam etching process, for the relief pattern of the functional layers. The problem of calculation and optimization of the ion-beam etching process arises due to the deviation of geometrical sizes and the effect of the protective mask degeneration into the "maximum dispersion form". This problem can be solved using measurement of the ion-beam incidence with respect to the target and using the rotation of the ion beam etching in the case of very high speed. Then we have in half plane the non-linear equation with the initial condition describing the evolution of the protection mask profile, with coefficient $f(a(t))$ where mask boundary is ion-beam direction the inclination angle is control parameter $a(t)$ describes the characteristics of the mask f(f really it is known from the experiment). For the considered mask optimization problem using the control singular perturbation the L.S. Pontryagin maximum principle has been determined. (Received July 05, 2010)