1046-65-987 **Olga Drblikova** and **Angela Handlovicova\*** (`handlovicova@math.sk`), Faculty of civil engineering SUT, Radlinskeho 11, 81368 Bratislava, Slovak Rep, and **Karol Mikula**. *Finite volume scheme for the nonlinear tensor anisotropic diffusion.*

Semi-implicit diamond-cell finite volume numerical scheme, for solving the nonlinear tensor anisotropic diffusion is investigated. The nonlinear tensor anisotropic diffusion introduced by Weickert is used in many image processing applications. First we present the finite volume scheme and its basic properties. Then the error estimate analysis is presented, where the piecewise constant approximation given by the finite volume scheme is compared with the weak solution to the problem. We proved that the error of the approximate solution in $L^2$-norm is of order $h$, where $h$ is a spatial resolution step under the natural relation $k \approx h^2$, where $k$ is a time discretization step. (Received September 13, 2008)