1086-VL-2983 **Du Pham*** (dpham@butler.edu), 4600 Sunset Ave., Indianapolis, IN 46208. *On the stability and convergence results of finite volume schemes for diffusion problems with a gradient-dependent diffusion coefficient.* Preliminary report.

We discretize a nonlinear difusive equation by finite difference in space and by finite volume in time. We then prove a weighted Poincaré inequality to show a stability result of the scheme. We finally discuss convergence result of the scheme with a compactness result due to its nonlinearity. (Received September 26, 2012)