1083-35-181 **Izumi Takagi*** (`takagi@m.tohoku.ac.jp`), Mathematical Institute, Tohoku University, Aoba, Aoba-ku, Sendai, Miyagi 980-8578, Japan. *Movement of a solution having a single spike on the boundary of a semilinear parabolic equation.* Preliminary report.

We consider the initial value problem for a semilinear parabolic equation with subcritical growth rate under the homogeneous Neumann boundary condition. Bates, Lu and Zeng proved that this problem has a normally hyperbolic invariant manifold consisting of functions which have a single boundary spike. This means that if we take an initial function belonging to the invariant manifold, then the solution exists for all time and the behavior of the solution is determined by that of the (spatial) maximum point which moves on the boundary. They showed that, as a principal approximation, the maximum point moves along the gradient flow of the mean curvature function. In this talk we describe the procedure for computing the coefficients of the asymptotic expansion with respect to the diffusion constant of the kinetic equation for the maximum point, in order to know the behavior of solutions near the critical point of the curvature function. The result is obtained as the joint work with Masaaki Kudo. (Received August 27, 2012)