1117-35-69   **Eunhee Park***, 831 East 3rd St, Dept of Mathematics at Indiana University, Boomington, IN 47405, and **CY Jung** and **R. Temam**. *Boundary layer analysis for nonlinear reaction-diffusion equations in polygonal domains.* Preliminary report.

We consider a singularly perturbed nonlinear reaction-diffusion equation that its solution display thin and sharp boundary layers near the boundary of a polygonal domain. We analyze the singular behaviors of the solutions at any given order with respect to the arbitrarily given small parameter. The key features of the article are that we deal with the corner boundary layers which the smooth domain does not possesses and analysis of the nonlinear term by truncated error. (Received December 31, 2015)