1096-35-367 **Soyeun Jung*** (`soyjung@indiana.edu`), 831 E 3rd St., Bloomington, IN 47405. *Pointwise asymptotic behavior of modulated periodic reaction-diffusion waves.*

We discuss, under standard spectral stability assumptions, pointwise stability and asymptotic behavior of localized modulated spatially periodic traveling waves $u(x,t) = \bar{u}(x - at)$ of systems of reaction-diffusion equations of form $u_t = u_{xx} + f(u)$, where $(x,t) \in \mathbb{R} \times \mathbb{R}^+$, $u \in \mathbb{R}^n$, and $f : \mathbb{R}^n \to \mathbb{R}^n$ is sufficiently smooth. By working with the periodic resolvent kernel and the Bloch-decomposition, we first establish pointwise bounds for the Green function of the linearized equation associated with $\bar{u}$. With our linearized estimates together with a nonlinear iteration scheme developed by Johnson-Zumbrun, we obtain pointwise asymptotic behavior of periodic traveling waves $\bar{u}(x)$ by showing that perturbations of $\bar{u}(x)$ converge to the heat kernel under small initial perturbations, $|u_0| \leq E_0 e^{-|x|^2/M}$ with $|u_0|_{H^2} \leq E_0$, and $|u_0| \leq E_0(1+|x|)^{-r}$, $r > 2$ with $|u_0|_{H^2} \leq E_0$ respectively, where $E_0 > 0$ sufficiently small and $M > 0$ sufficiently large. Here, we emphasize again that it is the pointwise description that is the main new aspect of our research. (Received August 30, 2013)