1145-35-308 **Xinyao Yang*** (xinyao.yang@xjtlu.edu.cn) and **Yuri Latushkin**. *Differential manifolds near a traveling front for multi-dimensional reaction diffusion systems.*

We establish the existence of a stable manifold in the vicinity of a traveling front solution for systems of reaction diffusion equations in multi-dimension that arise in the study of chemical reactions models and solid fuel combustion. In this way we complement the orbital stability results from earlier papers by A. Ghazaryan, Y. Latushkin and X. Yang. The essential spectrum of the differential operator obtained by linearization at the front touches the imaginary axis. In spaces with exponential weights, one can shift the spectrum to the left. We study the nonlinear equation on the intersection of the unweighted and weighted spaces. Small translations of the front form a center unstable manifold. For each small translation we prove the existence of a stable manifold containing the translated front and show that the stable manifolds foliate a small ball centered at the front. (Received August 29, 2018)