1154-VN-1251 **Yung-Sze Choi** and **Jieun Lee*** (jieun.lee@uconn.edu). *Existence of standing pulse solutions to a skew-gradient system.* Preliminary report.

From vegetation patterns in an ecological system to propagating waves in a nerve conduction system, patterns emerge everywhere in nature. Reaction-diffusion systems have been used to explain the mechanism of pattern formation from a mathematical perspective. There are certain reaction-diffusion systems with skew-gradient structure that exhibit localized patterns such as fronts and pulses. While there are many literatures on the existence of pulse solutions to activator-inhibitor type skew-gradient systems, the study of nonlinear inhibitor equation is still limited. In this study, we investigate standing pulse solutions in a 2-component skew-gradient system in which cubic nonlinearities are involved with both activator and inhibitor. Using a variational approach, we establish the existence of standing pulse solutions with a sign change under appropriate parameter constraints. In addition, we explore some qualitative properties of the standing pulse solutions. (Received September 14, 2019)