1114-92-278   **Weitao Chen*** (`weitaoc1@uci.edu`), **Qing Nie** (`qnie@math.uci.edu`) and **Arthur Lander** (`adlander@uci.edu`). *Robust dynamics in tissue growth and development patterning.*

Robustness is observed widely in biological systems and the related study is essential in mathematical modeling. In particular, size control and pattern formation, both displaying strong robustness, can serve as good models to investigate the related mechanisms. Tissue and organ size is genetically specified with remarkable precision, independent of growth rate, cell size, only weakly sensitive to initial conditions and relatively resistant to a variety of external perturbations. The patterning of many developing tissues is organized by morphogens and its formation is often quite resistant to embryonic difference, intrinsic or extrinsic noises. The robustness of different systems can be enhanced by particular mechanisms. In this talk, I will use a multi-stage cell lineage model to discuss general strategies that may contribute in achieving large tissue size robustly. I will also present two particular systems, the papillae formation on a mouse tongue or the scaling behavior during the growth of a wing disc in drosophila, to reveal the mechanisms for obtaining specific patterns with robustness regarding to noise. (Received August 31, 2015)