1127-35-330   **Truyen Nguyen*** (`tn8@uakron.edu`), 302 Buchtel Common, Akron, OH 44325.
Calderón-Zygmund estimates for quasilinear elliptic equations.

We study quasilinear elliptic systems of the form $\operatorname{div} \mathbf{A}(x, u, \nabla u) = \operatorname{div} \mathbf{F}(x)$ with $\mathbf{A}$ being possibly discontinuous in the x variable. In this talk, we will discuss some results concerning local integrability of gradients of weak solutions to the equation. For scalar case, we derive interior L^q gradient estimates of Calderón-Zygmund type for bounded weak solutions. Similar gradient estimates are also established for solutions of systems in regions which are away from the singular set. The dependence of the principal part on the u variable made it difficult to perform any scaling analysis and we handle it by using a perturbation argument together with a two-parameter scaling technique. This is based on joint works with Tuoc Phan and with Phuoc-Tai Nguyen. (Received February 06, 2017)