Subdifferentials and Monotone Operators

Date: Friday, September 28, 2018
Time: 3:45 p.m. – 4:45 p.m.
Place: Shelby Center 218

Subdifferentials of proper, closed and convex functions are linked with the solvability of optimization problems with constraints. The notion of directional derivatives of proper, closed and convex functions defined on finite-dimensional spaces will lead to the consideration of set-valued operators called subdifferentials, which yield an important subclass of maximal monotone operators. The talk will begin with a gentle introduction to monotone operators and subdifferentiability of proper, closed and convex functions. In order to show the plentitude of monotone operators, some examples from ordinary and partial differential equations will be discussed. In particular, the Laplace operator and p-Laplace operators will be shown to be the subdifferentials of some convex functionals on relevant function spaces. If time permits, the existence of nontrivial solutions of operator equations involving maximal monotone operators in reflexive Banach spaces will be presented.

Refreshments will be served at 3:30 p.m. in SC 201 suite landing.