1015-35-40 **Congming Li*** (`cli@colorado.edu`), CB526, Univ. of Colorado, Boulder, CO 80309-0526. *The Analysis of Solutions to Nonlinear Partial Differential/Integral Equations.*

Qualitative analysis of solutions to various partial differential equations or integral equations is an important research area with many applications. I will present some of my works on how to obtain monotonicity, symmetry, integrability, a priori estimates, and in some cases the classifications of solutions. The focus will be on the study of the Euler-Lagrange equations related to the well known Hardy-Littlewood-Sobolev inequalities. In certain specials cases, these integral equations are equivalent to some well known partial differential equations.

I will also introduce some key futures of the main technique–the method of moving planes and will also present a simple method for the study of regularity and obtain the optimal integrability interval for solutions of a class of systems equations as an application. (Received January 10, 2006)