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**Changfeng Gui\*** ([gui@math.uconn.edu](mailto:gui@math.uconn.edu)), Department of mathematics, University of Connecticut, Storrs, CT. *Hamiltonian identities for Elliptic PDEs and its application.*

In this talk I will present a hamiltonian identity for PDEs and systems of PDEs. I will also show some interesting applications of the identity to problems related to entire solutions. In particular, I will give a rigorous proof to the Young's law in triple junction configuration for a vector-valued Allen Cahn model arising in phase transition; A necessary condition for the existence of certain saddle solutions for Allen-Cahn equation with asymmetric double well potential will be derived, and the structure of level sets of general saddle solutions will also be discussed. (Received January 18, 2008)