ATELIER EN ANALYSE CONVEXE ET ANALYSE GÉOMÉTRIQUE ASYMPTOTIQUE
16-20 AVRIL, 2012

**WORKSHOP ON CONVEXITY AND ASYMPTOTIC GEOMETRIC ANALYSIS**
**APRIL 16-20, 2012**

# Second derivatives a.e. for non-convex functions

Joseph Fu *
fu@math.uga.edu

---

A famous theorem of Alexandrov states that a convex function admits a second order Taylor expansion a.e. It turns out that this is true also of a much wider class of functions, essentially those functions $f$ for which the graph of the differential $df$ may be realized as a closed Lagrangian integral current (if $f$ is convex then the graph of the subdifferential may be thought of in this way).

*Department of Mathematics, University of Georgia, Athens, GA 30602, USA.