962-35-796   **Nicola Garofalo*** (`garofalo@math.purdue.edu,ngarofalo@math.jhu.edu`) and **Donatella Danielli**. *Qualitative properties of entire solutions of non-linear equations arising in geometry and in phase transitions.* Preliminary report.

We study a priori estimates, Liouville type results, energy monotonicity and one-dimensional symmetry of bounded critical points of general functionals from the calculus of variations. The framework includes, as special cases, the equation of prescribed mean curvature and also quasi-linear equations modelled on the so-called p-Laplacian. We show that when n = 2 or 3, bounded entire solutions which are monotone in one direction are, in fact, one-dimensional. This means that their level sets are hyper-planes. This result generalizes the recent solution of a famous conjecture of E. De Giorgi due to Gossoub-Guy (n = 2) and to Ambrosio and Cabre' (n = 3). (Received September 26, 2000)