1049-35-13 **Shusen Ding*** (sding@seattleu.edu), Department of Mathematics, Seattle University, Seattle, WA 98122. *A-Harmonic Equations for Differential Forms.*

The A-harmonic equations belong to the nonlinear elliptic equations written in terms of an operator A satisfying certain structural assumptions. The study of the A-harmonic equation for differential forms has developed rapidly in recent years. The A-harmonic equation is an important extension of the p-harmonic equation in $\mathbf{R}^n$, $p > 1$. In the meantime, the p-harmonic equation is a natural generalization of the usual Laplace equation. The A-harmonic equation is closely connected to the fields such as potential theory, quasiconformal mappings and the theory of elasticity, etc.

In this presentation, we will first introduce different versions of the A-harmonic equation. Then, we study the integral properties of the solutions of the A-harmonic equation in different domains. (Received January 07, 2009)