1012-35-55 **Hong-Ming Yin*** (hyin@wsu.edu), Department of Mathematics, Washington State University, Pullman, WA 99164. *Regularity of Solution for a p-curl System Arising from the supercondutor theory.*

In this paper we derive the optimal regularity of solution to a p-curl type of system. The system is used to model the steady-state Bean's critical model for type-II superconductors. The result is a generalization of the regularity theory for the p-Laplacian equation. (Received August 30, 2005)