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**Yi Li** and **Chun-Shan Zhao\*** ([chunshan-zhao@uiowa.edu](mailto:chunshan-zhao@uiowa.edu)), Department of Mathematics, University of Iowa, Iowa City, IA 52242. *Locating the peaks of least-energy solutions to a quasilinear elliptic Neumann problem.*

We will study the shape of least-energy solutions to the quasilinear problem  $\varepsilon^m \Delta_m u - u^{m-1} + f(u) = 0$  with homogeneous Neumann boundary condition. We use an intrinsic variation method to show that as  $\varepsilon \rightarrow 0$ , the point  $P_\varepsilon \in \partial\Omega$  where least-energy solution achieves its maximum goes to a point where the mean curvature of  $\partial\Omega$  achieves its maximum. We also give a complete proof of exponential decay of least-energy solutions. Even for case  $m=2$  our proof is an extension of earlier ones in that the non-degeneracy of the ground state is not required here in our work. (Received August 31, 2005)