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jiuyi zhu* (zhu@math.lsu.edu), Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803, and **Blair Davey**, Department of Mathematics, The City College of New York, New York, NY. *Quantitative uniqueness of elliptic equations.*

Motivated by the study of eigenfunctions, we consider the quantitative uniqueness of elliptic equations. The quantitative uniqueness is characterized by the order of vanishing of solutions, which describes quantitative behavior of strong unique continuation property. Strong unique continuation property states that if a solution that vanishes of infinite order at a point vanishes identically. It is interesting to know how the norm of the potential functions and gradient potentials control the order of vanishing. We will report some recent progresses about quantitative uniqueness in different Lebesgue L^p spaces for elliptic equations. Carleman estimates play an important role in the strong unique continuation property. By using some delicate quantitative Carleman estimates, we obtain some Hadamard three-sphere theorems which lead to the order of vanishing of solutions. (Received March 05, 2017)