1036-35-19   **Enea Parini*** (`eparini@math.uni-koeln.de`), Department of Mathematics, Weyertal 86-90, Cologne, Germany. *Some results about Cheeger sets: uniqueness and nonuniqueness.*

Given a bounded domain $\Omega \subset R^n$, the Cheeger problem consists of finding a set $E \subset \overline{\Omega}$ minimizing the ratio perimeter-area among all subsets of $\overline{\Omega}$. Such a set is a *Cheeger set* for Ω. In spite of its geometrical formulation, this problem finds application in questions related to the first eigenvalue and eigenfunction of the p-Laplace operator; in particular, it is known that the first eigenfunctions of the p-Laplacian converge, as $p \to 1$, to a function such that almost every of its level sets is a Cheeger set for Ω. In my talk I will present some results about Cheeger sets and discuss in particular uniqueness questions. (Received November 30, 2007)