1108-28-521   **Yang Wang***, Department of Mathematics, Hong Kong University of Science and Technolog, Kowloon, Hong Kong. *Self-Similar Subsets of the Cantor Set.*

We study the following question proposed by Mattila in 1998: what are the self-similar subsets of the middle-third Cantor set C? For any non-trivial self-similar subset F of C, we show that any linear generating IFS of F should consist of similitudes whose contraction ratios are integer powers of 1/3. Furthermore, we provide necessary and sufficient conditions to characterize all self-similar subsets of C. A very simple criterion is formulated to characterize self-similar subsets of C with equal contraction ratio. For the general case a finite algorithm is provided to generate all self-similar subsets of C with pre-given contraction ratios. (Received January 20, 2015)