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Yang Wang* (yangwang@ust.hk), Department of Mathematics, Hong Kong Univ. of Science and Technology, 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 with contraction ratios $1/3^n$. Furthermore, we provide a necessary and sufficient condition 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. A finite algorithm is provided to generate all self-similar subsets of C with pre-given contraction ratios. (Received September 14, 2014)