1100-37-145   **Wen Huang*** (`wenh@mail.ustc.edu.cn`), Department of mathematics, University of Science and
                     Technology of Chia, Hefei, Anhui 230026, Peoples Rep of China. *Affine embeddings and*
                     Intersections of Cantor sets.

Let $E, F \subset \mathbb{R}^d$ be two self-similar sets. Under mild conditions, we show that F can be C^1 embedded into E if and only if it can be affinely embedded into E; furthermore if F can not be affinely embedded into E, then the Hausdorff dimension of the intersection $E \cap f(F)$ is strictly less than that of F for any C^1 diffeomorphism f on $\mathbb{R}^d$. Under certain circumstances, we prove the logarithmic commensurability between the contraction ratios of E and F if F can be affinely embedded into E. As an application, we show that

$$dim_H(E \cap f(F)) < \min\{dim_H(E), dim_H(F)\}$$

when E is any Cantor-p set and F any Cantor-q set, where $p, q \geq 2$ are two integers with $\log p / \log q \notin \mathbb{Q}$.

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