

Gauges for the Self-similar Set with OSC

Zhi-Ying Wen

Department of Mathematics

Tsinghua University

Beijing 100084, China

E-mail: wenzy@tsinghua.edu.cn

Abstract. Let E be a self-similar set with Open Set Condition and g a gauge function. Some necessary and sufficient conditions such that g is a Hausdorff or prepacking gauge of E are given. Moreover, let g be a Hausdorff or prepacking gauge of E and define g^* to be the function

$$g^*(x) = \limsup_{t \downarrow 0} \frac{g(xt)}{g(t)}, \quad x \in [0, \infty).$$

Some conditions such that g^* is a regular gauge of E are also obtained.