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Wen Huang* (wenh@mail.ustc.edu.cn), Department of Math, University of science and Technology of China, Hefei, Anhui 230026, Peoples Rep of China. *A variational principle for subset.*

We prove a variational principle of entropy for any given compact subset. More precisely, for a given dynamical system (X, T) , we introduce the measure entropy $\underline{h}_\mu(T)$ and $\overline{h}_\mu(T)$ for any given Borel Probability measure μ on X . Then for a given non-empty compact subset E of X , we show that the corresponding Bowen entropy $h_{\text{top}}^B(T|E)$ satisfies

$$h_{\text{top}}^B(T|E) = \sup\{\underline{h}_\mu(T) : \mu \text{ is a Borel Probability measure supported on } E\}.$$

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