

# Aubry set for almost sub-additive potentials

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## Abstract

Given a topological dynamical systems  $(X, T)$ , consider a sequence of continuous potentials  $\mathcal{F} := \{f_n : X \rightarrow \mathbb{R}\}_{n \geq 1}$  that is almost sub-additive. In a generalized version of ergodic optimization theory, one is interested in describing the set  $\mathcal{M}_{\max}(\mathcal{F})$  of  $T$ -invariant probabilities that attain the following maximum value

$$\max \left\{ \lim_{n \rightarrow \infty} \frac{1}{n} \int f_n d\mu : \mu \text{ is } T\text{-invariant probability} \right\}.$$

For this purpose, we extend the notion of Aubry set, denoted by  $\Omega(\mathcal{F})$ . Our main result provide a sufficient condition for the Aubry set to be a maximizing set, i. e.,  $\mu$  belongs to  $\mathcal{M}_{\max}(\mathcal{F})$  if, and only if, its support lies on  $\Omega(\mathcal{F})$ . Furthermore, we apply this result to the study of the generalized spectral radius and the finiteness property. These are some results of the PhD thesis of João Tiago A. Gomes under the supervision of Prof. Eduardo Garibaldi (IMECC - UNICAMP).