

**THE AUBRY SET OF SYMBOLIC DYNAMICS WITH  
UNCOUNTABLE SYMBOL: FROM THE VIEW POINTS OF  
THE WEAK KAM APPROACH AND VARIATIONAL METHODS**

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ABSTRACT. We consider the Aubry set for the XY model, symbolic dynamics  $([0, 1]^{\mathbb{N}_0}, \sigma)$  with the uncountable symbol  $[0, 1]$ , and study its action-optimizing properties. Moreover, for a potential function that depends on the first two coordinates we obtain an explicit expression of the set of optimal periodic measures and a detailed description of the Aubry set. We also show the typicality of periodic optimization for 2-locally constant potentials with the twist condition. Our approach combines the weak KAM method for symbolic dynamics and variational techniques for twist maps. This is joint work with Yuika Kajihara (Kyoto University) and Mao Shinoda (Ochanomizu University).