

Yu, Yifeng L^∞ variational problems and weak KAM theory. (English) [Zbl 1115.49025](#)
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Summary: In the first part of this paper, we extend several results in *M. G. Crandall, L. C. Evans* and *R. F. Gariepy* [Optimal Lipschitz extensions and the infinity Laplacian, *Calc. Var. Differ. Equ.* 13, No. 2, 123–129 (2001; [Zbl 0996.49019](#))] and *M. G. Crandall* and *L. C. Evans* [A remark on infinity harmonic functions, *Electron. J. Differ. Equ. Conf.* 6, 2001] to absolute minimizers of more general L^∞ functionals. In the second part, we present some interesting connections between L^∞ variational problems and weak KAM theory. As an application, we will advance the main result in *A. Fathi* and *A. Siconolfi* [Existence of C^1 critical subsolutions of the Hamilton-Jacobi equation *Invent. Math.* 155, No. 2, 363–388 (2004; [Zbl 1061.58008](#))], i.e., the existence of a C^1 subsolution of the Hamilton-Jacobi equation. Moreover, we will propose a possible approximation of the projected Aubrey set by a variational approach that was first used by *L. C. Evans* in [Some new PDE methods for weak KAM theory, *Calc. Var. Partial Diff. Equ.* 17, No. 2, 159–177 (2003; [Zbl 1032.37048](#))].

MSC:

- [49L25](#) Viscosity solutions to Hamilton-Jacobi equations in optimal control and differential games Cited in 6 Documents
- [49J30](#) Existence of optimal solutions belonging to restricted classes (Lipschitz controls, bang-bang controls, etc.)
- [49N60](#) Regularity of solutions in optimal control

Keywords:

absolute minimizers; Hamilton-Jacobi equation

Full Text: [DOI](#)**References:**

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