



Ekeland's Variational Principle for An \bar{L}^0 -Valued Function on A Complete Random Metric Space

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Motivated by the recent work on conditional risk measures, this paper studies the Ekeland's variational principle for a proper, lower semicontinuous and lower bounded \bar{L}^0 -valued function, where \bar{L}^0 is the set of equivalence classes of extended real-valued random variables on a probability space. First, we prove a general form of Ekeland's variational principle for such a function defined on a complete random metric space. Then, we give a more precise form of Ekeland's variational principle for such a local function on a complete random normed module. Finally, as applications, we establish the Bishop-Phelps theorem in a complete random normed module under the framework of random conjugate spaces.

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