Ekeland, Takahashi and Caristi principles in quasi-semimetric spaces

Ştefan Cobzaş

07.03.2019

Abstract

We prove versions of Ekeland, Takahashi and Caristi principles in sequentially right K-complete quasi-semimetric spaces (meaning asymmetric semimetric spaces), the equivalence between these principles, as well as their equivalence to the completeness of the underlying quasi-pseudometric space.

The key tools are Picard sequences for some special set-valued mappings corresponding to a function f on a quasi-semimetric space, allowing a unitary treatment of all these principles.

NOTE. The full version is posted on arXiv.