

Méthodes topologiques en analyse non linéaire:développements récents -  
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## **A convex selection theorem with a non separable Banach space**

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In a previous paper, we showed that if  $X$  is a metric space and  $Y$  is a Banach space, then any lower semicontinuous correspondence  $\varphi: X \rightarrow 2^Y$  with nonempty convex valued such that  $\varphi$  has either closed or finite dimensional images admits a selection. In a new paper, we extend this result to the case where  $X$  is Hausdorff paracompact and perfectly normal topological space.

This allows to revisit the pioneer work of Michael and to show that such a property is a characterization of Hausdorff paracompact and perfectly normal topological space.

As in our previous paper, we use the concept of peeling for the points  $x$  such that  $\varphi(x)$  has a finite dimension in order to build a lower semicontinuous correspondence contained in the relative interior of  $\varphi(x)$ .

Here, additional techniques are used to encompass the absence of a metric structure.