

Zdeněk Frolík

Images of uniform measures

In: Zdeněk Frolík (ed.): Abstracta. 4th Winter School on Abstract Analysis. Czechoslovak Academy of Sciences, Praha, 1976. pp. 89.

Persistent URL: <http://dml.cz/dmlcz/701050>

Terms of use:

© Institute of Mathematics of the Academy of Sciences of the Czech Republic, 1976

Institute of Mathematics of the Academy of Sciences of the Czech Republic provides access to digitized documents strictly for personal use. Each copy of any part of this document must contain these *Terms of use*.



This paper has been digitized, optimized for electronic delivery and stamped with digital signature within the project *DML-CZ: The Czech Digital Mathematics Library* <http://project.dml.cz>

FOURTH WINTER SCHOOL (1976)

Images of uniform measures

by

Zdeněk Frolík

The positive cone $\mathcal{M}_U^+(X)$ of the space $\mathcal{M}_U(X)$ of uniform measures has the remarkable property that the topology coincides with the weak topology (which is $\mathcal{S}(\mathcal{M}_U(X), U_{\mathcal{L}}(X))$). Since $\mathcal{M}_U(X) = \mathcal{M}_U^+(X) - \mathcal{M}_U^+(X)$, uniformly to define the image under a mapping $f: X \rightarrow Y$ of a uniform measure such that the resulting measure is uniform, it is enough to extend f to a continuous mapping of $\mathcal{M}_U^+(X)$ into $\mathcal{M}_U^+(Y)$ such that the obvious extension is linear. Let $\mathcal{N}(X, Y)$ be the set of all $f: X \rightarrow Y$ which admit such extension. The basic fact is that $\mathcal{N}(X, Y) = \mathcal{M}(X, Y)$ when

is introduced in the author's Measure-fine uniform spaces, Proc. Measure Conference in Oberwolfach, to appear in Lecture Notes in Math. Just for orientation note that for a continuous bounded function f on X the following conditions are equivalent:

- (1) $f \in \mathcal{N}(X, \mathbb{R})$
- (2) $f \in \mathcal{M}(X, \mathbb{R})$
- (3) For each $r > 0$, and each $\mu \in \mathcal{M}_U(X)$, there exist \bar{f} and \underline{f} in $U_{\mathcal{L}}(X)$ such that $\underline{f} \leq f \leq \bar{f}$, and $|\mu|(\bar{f} - \underline{f}) < r$.

The text will appear in Seminar Uniform Spaces 1975-6 published by Mathematical Institute of Czech. Acad. of Sciences.