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On quasi-uniform convergent sequences of multivalued maps. (English) Zbl 0759.54010
Bull. Pol. Acad. Sci., Math. 37, No. 1-6, 137-143 (1989).

Summary: Let X be a topological space, (Y, \mathcal{U}) a uniform space and $(\mathcal{Z}(Y), \tilde{\mathcal{U}})$ the space of all nonempty compact subsets of Y with the induced uniformity. A sequence $\{F_n : n \geq 1\}$ of multivalued maps of X with values in $\mathcal{Z}(Y)$ is called quasi-uniformly convergent to a multivalued map F if for every $U \in \mathcal{U}$ and $n \geq 1$ there exists a natural number k such that for each $x \in X$ there is $j \in \{0, 1, \dots, k\}$ for which there holds $F_{n+j}(x) \subset U[F(x)]$ and $F(x) \subset U[F_{n+j}(x)]$. The quasi-uniform convergence preserves the upper and lower semicontinuity, and under some assumptions on X and Y , also the measurability of the Baire class α . If X is a Baire space and F_n are upper or lower \mathcal{U} -quasi-continuous, then the function $F : X \rightarrow (\mathcal{Z}(Y), \tilde{\mathcal{U}})$ is cliquish.

MSC:

[54C60](#) Set-valued maps in general topology
[54E15](#) Uniform structures and generalizations
[54E52](#) Baire category, Baire spaces
[54B20](#) Hyperspaces in general topology

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