Quasicontinuity and minimal usco (cusco) maps

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The notion of quasicontinuity was introduced by Kempisty in 1932 in his paper [Ke] for real functions of real variables. As Kempisty mentioned in his paper [Ke] the quasicontinuity has its origin in the paper of Hahn [Ha].

However the notion of quasicontinuity was perhaps the first time used by Baire in 1899 in his paper [Ba] in the study of continuity points of separately continuous functions from $\mathbb{R}^2$ to $\mathbb{R}$.

There is a rich literature concerning quasicontinuous functions and set-valued maps (see for example the survey paper of Professor Neubrunn [Ne]). Quasicontinuity found its applications in the theory of topological groups, in the theory of selections and also in the study of minimal usco and cusco maps.

The acronym usco (cusco) stands for a (convex) upper semicontinuous nonempty compact valued set-valued maps. Such set-valued maps are interesting because they describe common features of maximal monotone operators and convex subdifferentials which are useful in convex analysis.

In my lecture I will present interesting characterizations of minimal usco and cusco maps using quasicontinuous selections [H1, H2].

References

[Ba] R. Baire, Sur les fonctions des variables réelles, Ann. Mat. Pura Appl. 3 (1899), 1-122
[Ha] H. Hahn, Uber funktionen mehrerer Veraderlicher, die nach jeder einzelnen Veraderlichen stetig sind, Matematische Zeitschrift (1919), 306-313