

On μ -completeness of uniform spaces and uniformly continuous mappings

*Dinara E. Kanetova**, *Bekbolot E. Kanetov*,
Farizat K. Sharshembieva

dinara_kg@mail.ru,
bekbolot_kanetov@mail.ru,
peri7979@mail.ru

In this talk the μ -complete uniform spaces are studied, i.e. those spaces, where every Cauchy filter with base of cardinality $\leq \mu$ converges. We introduce a new concept of index of μ -completeness denoted by $ic_\mu(X, U)$ of a uniform space (X, U) and the Dieudonne μ -complete space X , and also index of μ -completeness $ic_\mu(f)$ of the uniform continuous mapping $f : (X, U) \rightarrow (Y, V)$ between uniform spaces (X, U) and (Y, V) .

Some characteristics of these concepts are established.

- (1) $ic_\mu(X, U) = 1$ iff (X, U) is uniformly locally μ -compact space;
- (2) $ic_\mu(f) = 1$ iff f is uniformly locally μ -quasi-perfect mapping;
- (3) Tychonoff space (X, U) is Dieudonne μ -complete iff a uniform space (X, U_X) with a universal uniformity U_X is μ -complete.

