

# On $\mu$ -completeness of uniform spaces and uniformly continuous mappings

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In this talk the  $\mu$ -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  $\mu$ -completeness denoted by  $ic_\mu(X, U)$  of a uniform space  $(X, U)$  and the Dieudonne  $\mu$ -complete space  $X$ , and also index of  $\mu$ -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  $\mu$ -compact space;
- (2)  $ic_\mu(f) = 1$  iff  $f$  is uniformly locally  $\mu$ -quasi-perfect mapping;
- (3) Tychonoff space  $(X, U)$  is Dieudonne  $\mu$ -complete iff a uniform space  $(X, U_X)$  with a universal uniformity  $U_X$  is  $\mu$ -complete.