Some formulas for uniform spaces

Altai Borubaev

fiztech-07@mail.ru

The report will present formulas for permutation of the absolutes of uniform spaces with extensions of Samuel, Hewitt and completions of uniform spaces.

Let (X, U) an arbitrary uniform space and U a uniformity on X generating the topology of the space X. We denote by $(\dot{X}, \dot{U})$ the absolute of the uniform space (X, U) [3], where $\dot{U}$ is the absolute of the uniform space U, $\dot{X}$ is the absolute of the topological space X in the sense of V. I. Ponamarev [1]. Let (sX, sU) be a Samuel extension [2], $(\nu X, \nu U)$ a Hewitt extension and $(\tilde{X}, \tilde{U})$ a completion of a uniform space (X, U) [3]. Then the following formulas are true:

(1) $(s\dot{X}, s\dot{U}) \simeq ((sX)\dot{}, (sU)\dot{})$;

(2) $(\tilde{\dot{X}}, \tilde{\dot{U}}) \simeq ((\tilde{X})\dot{}, (\tilde{U})\dot{})$;

(3) $(\nu\dot{X}, \nu\dot{U}) \simeq ((\nu X)\dot{}, (\nu U)\dot{})$.

[1] V. I. Ponomarev, *On spaces co-absolute with metric spaces*, Uspekhi matem. nauk 11 (1966), (in Russian).

[2] R. Engelking, *General topology*, Moscow, 1986 (in Russian).

[3] A. A. Borubaev, *Uniform topology and its applications*, Bishkek, 2021.