# Some equivalents of the Continuum Hypothesis in terms of trees

## Archil Kipiani
E-mail: archil.kipiani@tsu.ge

Department of Mathematics Iv.Javakhishvili Tbilisi State University, 13 University str.,

Tbilisi, Georgia

We consider some simply formulated statements about trees, which are associated with the Continuum Hypothesis (CH) and Generalized Continuum Hypothesis (GCH). The following results hold:

**Theorem 1**. The conditions 1)-3) are equivalent:

1) CH;

2) There exists a tree which has precisely $\omega_1$ automorphisms;

3) There are exactly two cardinals $\kappa$ each of which is equipped with a rigid tree structure that has one vertex of degree $\kappa$, and all other vertices have degrees at most three.

**Theorem 2**. The following two conditions are equivalent:

1) GCH;

2) For any infinite cardinal number $\kappa$, there is a tree which has exactly $\kappa^+$ automorphisms.

Theorems 1 and 2 are closely connected with the results presented in the papers [1]-[2].

**References :**

1. *Archil Kipiani*, One abstract characterization of intervals of cardinal numbers, Acta Universitatis Lodziensis, Folia Mathematika, 9 (1997) 55-61.

2. *Archil Kipiani*, On automorphism groups of $\omega$-Trees, Georgian Mathematical Journal, 15:1 (2008) 93-97.