ABSTRACT

In this dissertation, we investigate the deducibility of certain statements / axioms for real numbers *from the principle of continuous induction*; originally, introduced in 1989 by Zhang Jingzhong [11]. In doing this, we realize the logical equivalence of the principle of continuous induction with certain other existing axioms for reals such as *Completeness axiom*, *bisection axiom* and *Cantor axiom* etc.

This raises a genuine project of developing the real analysis by using the comparatively simpler tool, namely, the principle of continuous induction in place of the completeness axiom. In the sequel, we derive several famous theorems of classical analysis from the principle of continuous induction.

In the end, we discuss some possible development and a couple of open problems.