

In this paper, we define the limit set  $\Lambda^\xi$  of an unconventional set of contractive functions  $\{f_k\}$  on the unit ball of non-Archimedean algebra. Then, we prove that  $\Lambda^\xi$  is compact, perfect and uniformly disconnected. It is shown that there is a new collection of contractive mappings  $\{\tilde{F}_k\}$  defined on  $\Lambda^\xi$ . Moreover, we establish that the set  $\Lambda^\xi$  coincides with the limit set generated by the semi-group of  $\{\tilde{F}_k\}$ . This result allows us to further investigate the structure of  $\Lambda^\xi$  by means of this limiting set. As an application, we demonstrate the existence of invariant measures on  $\Lambda^\xi$ . We should stress that the non-Archimedeanity of the space is essentially used in the paper. Therefore, the methods applied in this paper are not longer valid in the Archimedean setting (i.e. in case of real or complex numbers).