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Some Fixed Points Results on CAT(0) Spaces

More recently, many of the standard ideas of nonlinear analysis have been extended to the class of so-called CAT(0) spaces. First time, W.A. Kirk developed the fixed point theory for CAT(0) spaces and proved an interesting fact about the fixed point set. He showed that every nonexpansive (single-valued) mapping defined on a bounded closed convex subset of a complete CAT(0) space always has a fixed point. Since then the fixed point theory for single-valued and multivalued mappings in CAT(0) spaces has been rapidly developed. In 2008, Kirk and Panyanak used the concept of $\triangle$-convergence introduced by Lim to prove the CAT(0) space analogs of some Banach space results which involve weak convergence and Dhompongsa and Panyanak obtained $\triangle$-convergence theorems for the Picard, Mann and Ishikawa iterations in the CAT(0) space setting. And many of papers have appeared [1-9].

In this talk, we generalize some concepts on CAT(0) spaces and verify some their properties and inequalities with introducing the α-nonexpansive mappings, Also we obtain some fixed points and approximate fixed points theorems for T_α maps on a bounded closed convex subset of a complete CAT(0) space.

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