Topological Properties of Delta-Open Sets

Raja Mohammad Latif
King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences, Dhahran 31261, Saudi Arabia
raja@kfupm.edu.sa

Veličko [1968] introduced the concepts of delta-closure and delta-interior operations. We introduce and study topological properties of delta-derived, delta-border, delta-frontier and delta-exterior of a set using the concept of delta-open sets and study also other properties of the well-known notions of delta-closure and delta-interior. We also introduce some new classes of topological spaces in terms of the concept of delta-D-sets and investigate some of their fundamental properties.
On a finer topological space than $\tau_\theta$ and some maps

Raja Mohammad Latif

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences, Dhahran 31261, Saudi Arabia
raja@kfupm.edu.sa

In 1943, Fomin [4] introduced the notion of $\theta$-continuity. In 1966, the notions of $\theta$-open subsets, $\theta$-closed subsets and $\theta$-closure were introduced by Veličko [11] for the purpose of studying the important class of $H$-closed spaces in terms of arbitrary filterbases. He also showed that the collection of $\theta$-open sets in a topological space $(X, \tau)$ forms a topology on $X$ denoted by $\tau_\theta$ (see also [6]). Dickman and Porter [8], [9], Joseph [5] continued the work of Veličko. Noiri and Jafari [7], Caldas et al. [1] and [2], Steiner [10] and Cao et al [3] have also obtained several new and interesting results related to these sets.

In this paper, we will offer a finer topology on $X$ than $\tau_\theta$ by utilizing the new notions of $\omega_\theta$-open and $\omega_\theta$-closed sets. We will also discuss some of the fundamental properties of such sets and some related maps.

2000 Mathematics Subject Classification: 54B05, 54C08; Secondary: 54D05.

Key Words and Phrases: topological spaces, $\theta$-open sets, $\theta$-closed sets, $\omega_\theta$-open sets, $\omega_\theta$-closed sets, anti locally countable, $\omega_\theta$-continuity.

(Joint work with:
Erdal Ekici, Department of Mathematics, Canakkale Onsekiz Mart University, Terzioglu Campus, 17020 Canakkale, Turkey, eekici@comu.edu.tr.
Saeid Jafari, College of Vestsjaelland South, Herrestraede 11, 4200 Slagelse, Denmark, jafari@stofanet.dk.)

References