

عنوان مقاله:

(Pre-image of functions in C(L)

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نویسندگان:

Ali Rezaei Aliabad - Department of Mathematics, Shahid Chamran University of Ahvaz, Ahvaz, Iran

Morad Mahmoudi - Department of Mathematics, Shahid Chamran University of Ahvaz, Ahvaz, Iran

خلاصه مقاله:

Let $C(L)$ be the ring of all continuous real functions on a frame L and $S \subseteq \mathbb{R}$. An $\alpha \in C(L)$ is said to be an overlap of S , denoted by $\alpha \blacktriangleleft S$, whenever $u \cap S \subseteq v \cap S$ implies $\alpha(u) \leq \alpha(v)$ for every open sets u and v in \mathbb{R} . This concept was first introduced by A. Karimi-Feizabadi, A.A. Estaji, M. Robot-Sarpoushi in *Pointfree version of image of real-valued continuous functions* (2018). Although this concept is a suitable model for their purpose, it ultimately does not provide a clear definition of the range of continuous functions in the context of pointfree topology. In this paper, we will introduce a concept which is called pre-image, denoted by pim , as a pointfree version of the image of real-valued continuous functions on a topological space X . We investigate this concept and in addition to showing $\text{pim}(\alpha) = \bigcap \{S \subseteq \mathbb{R} : \alpha \blacktriangleleft S\}$, we will see that this concept is a good surrogate for the image of continuous real functions. For instance, we prove, under some achievable conditions, we have $\text{pim}(\alpha \vee \beta) \subseteq \text{pim}(\alpha) \cup \text{pim}(\beta)$, $\text{pim}(\alpha \wedge \beta) \subseteq \text{pim}(\alpha) \cap \text{pim}(\beta)$, $\text{pim}(\alpha) \cap \text{pim}(\beta) \subseteq \text{pim}(\alpha \wedge \beta)$ and $\text{pim}(\alpha + \beta) \subseteq \text{pim}(\alpha) + \text{pim}(\beta)$.

کلمات کلیدی:

frame, Pointfree topology, $C(L)$, pre-image, prime ideal and maximal ideal in frames, f -algebra

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