On Wielandt near-rings

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Let G be an additive group, and let H be a subgroup of G^k for some $k \in \mathbb{N}$. The set $M_0(G, H, k)$ of zero-preserving self-maps a of G such that $a(H) \subseteq H$ is a near-ring with respect to pointwise addition and composition of mappings, called a *Wielandt near-ring*. Primeness in Wielandt near-rings was studied by Veldsman [2]. Let G be a T_0 (and hence completely regular) topological group. We consider the subnear-ring $N_0(G, H, k)$ of $M_0(G, H, k)$ which consists of continuous functions. Note that if $H = 0$ or G^k, then $N_0(G, H, k) = N_0(G)$, the near-ring of all zero-preserving self-maps of G. We will study primeness in $N_0(G, H, k)$, and will, inter alia, generalise some results of Veldsman [2] and Booth and Hall [1].

References

[1] G.L. Booth and P.R. Hall, *Primeness in near-rings of continuous functions,* Beiträge Alg. Geom. 45 (2004), No. 1, 21-27.
[2] S. Veldsman, *On equiprime near-rings,* Comm. in Algebra 20 (1992), No. 9, 2569-2587.