Let $\Omega$ be a locally compact Hausdorff space and $E = C_0(\Omega)$ the Banach space of continuous functions vanishing at infinity. An open subset $D$ of $E$ is called “continuous Reinhardt domain” if $g \in D$ whenever $f \in D$ and $g \in E$ with $|f(\omega)| \geq |g(\omega)|$ for all $\omega \in \Omega$. From now on let $D$ be a continuous Reinhardt domain which is moreover symmetric and bounded.

In [Arch. Math. 8, 50–61 (2003; Zbl 1045.32025)] L. L. Stacho and B. Zalar showed that every such domain can be described in the following way: There is a partition of $\Omega$ into finite subsets $\Omega_i$ and a function $m : \Omega \to \mathbb{R}^+$ such that $D = \{f : Q(f)(\omega) < 1 \ \forall \omega \in \Omega\}$ where the operator $Q$ is defined by $Q(f)(\omega) = \sum_\eta m(\eta) |f(\eta)|^2$ where the sum is taken over all $\eta$ in the same class $\Omega_i$ as $\omega$. The present article describes under which conditions a pair of a partition together with a function $m$ gives rise to a symmetric continuous Reinhardt domain. In particular, one has to impose a continuity condition on the pair which guarantess that $Q(f)$ is a continuous function on $\Omega$ for all $f \in C_0(\Omega)$.

Finally the authors investigate when two such domains are linearly equivalent. They deduce some structure theorems, then give an example of two locally compact topological spaces $\Omega$ and $\tilde{\Omega}$ which are not homeomorphic although $C_0(\Omega)$ and $C_0(\tilde{\Omega})$ contain linearly equivalent continuous Reinhardt domains.

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