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Section:

6. Topology

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Topological quasigroups with identities

A quasigroup (loop) $Q(A)$ is called topological, if Q is a topological space and the operations A, A^{-1}, ${}^{-1}A$ are continuous in Q, where A^{-1} and ${}^{-1}A$ are the right and left inverses for A, respectively.

Theorem. A groupoid $Q(\cdot)$ is a topological distributive quasigroup iff there exists a topological commutative Moufang loop $Q(+)$ such that the operation $(\cdot)$ is defined as follows:

$$x \cdot y = \varphi(x) + \psi(y),$$

where φ, ψ are topological automorphisms of $Q(+)$ and automorphisms of $Q(\cdot)$, $\varphi(x) + \psi(x) = x$, $x + \varphi(x) \in K_Q$ (is the kernel of $Q(+)$) for all $x \in Q$.
A characterization of the topological quasigroups with other identities will be presented.