

これまでの研究成果：英語版

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I became interested in the class of quandles with a manifold structure, called the “smooth quandle,” defined in Ishikawa [1]. While examining several examples, I obtained the expectation that a smooth quandle might be embedded in the conjugation quandle of a suitable Lie group. This was influenced by studies of a property called “quandle faithfulness,” and, in that it approaches the algebraic properties of quandles from the manifold structure, it is novel. The applicant showed that the conjecture is true for the quandle called the spherical quandle.

There is a school of thought that studies finite or discrete quandles from the viewpoint of “discretization of symmetric spaces.” However, up to now, there have not been sufficiently well-known concrete finite or discrete subquandles that arise naturally as quandle structures on symmetric spaces. Therefore the applicant, in the spherical case, identified finite subquandles for the quandles defined by the point symmetries of a Riemannian symmetric space. The obtained results show that the finite subquandles found are only those formed from root-system-formed quandles and the dihedral quandle, well-known examples, and this is regarded as a necessary step toward finding connections with other fields.

参考文献

[1] Katsumi Ishikawa. On the classification of smooth quandles. preprint.