

研究計画：英語版

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I would like to conduct three research projects.

The first one pertains to smooth quandles. I have formulated the conjecture that "smooth quandles can be embedded in conjugate quandles formed by suitable Lie groups." I have demonstrated this conjecture for the case of spherical quandles, but it remains unknown in other cases. I aim to explore what happens in those other cases.

The second area of research is related to Lie algebras and their representations. There is a framework called PC Lie algebras proposed by Sasano. This theory constructs new Lie algebras from existing Lie algebras and their representations, and I believe it is a useful tool for investigating smooth quandles. While approaching unresolved problems in the foundational theory, I would like to consider applications to quandles.

The third research project is about orbit decomposition. I participated in "solving challenges related to the mathematics of orbit decomposition" as part of the OCAMI shared usage program. Here, I am conducting the necessary calculations for developing theorems by creating programs for experiments. I would like to continue working on developing support programs.

参考文献