教授 (Professor)

斎藤 毅 (SAITO Takeshi)

A. 研究概要

局所体のアーベル拡大の分岐群について，Hasse–Arf の定理とよばれる整数性が成立する．加藤和也氏はこの古典的な定理を，剰余体の拡大が非分離な場合にも分岐指数が 1 で剰余体が単生成な場合に拡張していた．剰余体の拡大が一般の場合にも Hasse–Arf の定理については不等式がなりたち，等号成立と同値な条件を log 単生成という条件として定式化することにより，加藤氏の結果がどこまで一般化できるか明らかにした．証明のために，対数極つき微分形式の加群のトレース射を構成した．

For the ramification groups of abelian extensions of local fields, the Hasse–Arf theorem asserts an integrality. Kazuya Kato generalized this classical theorem to the case where the residue field extension is inseparable under the assumption that the ramification index is 1 and that the residue field extension is monogenic. An inequality holds without any assumption on the residue field extension and by formulating a condition equivalent to the equality as the log monegenicity, I clarified how much one can generalize of Kato's result. The proof is based on a construction of the trace morphism for the modules of differential forms with log poles.

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