

Conference of groups, rings and group rings II

West Kobe Mathematics Seminar

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Kobe Economics and Business Campus, University of Hyogo

Abstracts

Thompson's group F and a problem on its group algebra

Tsunekazu Nishinaka

We have studied about group algebras of non-noetherian groups and showed that they are often primitive if base groups have non-abelian free subgroups. But there exist some important non-Noetherian groups with no non-abelian free subgroups such as Thompson's group F . In this talk, we consider a problem on group algebras of Thompson's group F which asks whether they have common (right) multipliers or not. We introduce a new approach to the problem.

Primitivity for Group Rings over Hyperbolic Groups.

Brent Solie

In 2017, Nishnaka and Alexander produced a powerful criterion for establishing the primitivity of a group ring KG with coefficient field K . We show how the geometry of hyperbolic groups affects the primitivity of KG for a given non-elementary torsion-free hyperbolic group G . We will also discuss how this result extends naturally to the much larger class of *acylindrically hyperbolic groups* via the work of Dahmani and Abbott.

Decompositions of quasi-discrete modules

Yoshiharu Shibata

In this talk, we firstly introduce the concepts “dual square free” and “dual square full” modules. A module M is called *dual square free* if, whenever its factor module is isomorphic to $N^2 = N \oplus N$ for some module N , then $N = 0$ (cf. [1], [3], [2]). A module M is called *dual square full* if, for any proper submodule X of M , there exist a proper submodule Y of M with $X \subseteq Y$ and an epimorphism $f : M \rightarrow (M/Y)^2$. Secondly, we show some basic properties of these modules. Finally, we give direct sum decompositions of quasi-discrete modules using them.

REFERENCES

- [1] N. Ding, Y. Ibrahim, M. Yousif, Y. Zhou, *D_4 -modules*, J. Algebra **16(5)** (2017), 1750166-1–1750166-25.
- [2] D. Kuskin Tütüncü, I. Kikumasa, Y. Kuratomi, Y. Shibata, *On dual of square free modules*, Comm. Algebra **46:8** (2018), 3365–3376.
- [3] I. Kikumasa, Y. Kuratomi, *On H -supplemented modules over a right perfect ring*, Comm. Algebra **46:5** (2018), 2063–2072.

A primitive ring without minimal right ideals.

Hisaya Tsutsui

It is well known that a prime ring with a minimal right ideal is primitive. The Weyl algebra over a field of characteristic zero is an example of a primitive ring without minimal right ideals. In this short talk, we consider non-simple primitive ring with zero socle.