Seminar on Representation Theory and Algebraic Lie Theory

Jean-Marie Bois, Rolf Farnsteiner, Daiva Pucinskaite

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coming up recent talks archive

The seminar takes place on Tuesdays **14:15 – 15:45**, in Room 325 of the Mathematical Institute. How do I get to the university?

See the page of our Research Team.

Please visit the page of the semesterly joint seminar Bremen – Hamburg – Kiel.

Tuesday 21. June, 14:15 – 15:45

Yorck **Sommerhäuser**
(University of South Alabama)
Hopf algebras, congruence subgroups, and Frobenius-Schur indicators.

Abstract: Every factorizable Hopf algebra leads to a representation of the modular group. In the semisimple case, the kernel of this representation is in fact a congruence subgroup whose level is determined by the exponent of the Hopf algebra. We explain how equivariant Frobenius-Schur

indicators can be used to establish this fact.

The talk is based on joint work with Yongchang Zhu. It is intended for a general audience; in particular, no knowledge about Hopf algebras will be assumed. Accordingly, we will begin with a general introduction to the subject.

Upcoming programme

- 28. June: Christoph **Wockel** (Hamburg), *Kohomologietheorien von Lie-Gruppen*. abstract
- 05. July: Dirk **Kirchhoff**, t.b.a.
- 12. July: Andreas **Gundrum**, *The Jacobson-Morozov Theorem*.

Next BHK Seminar meeting: Thursday 7. July. See the seminar page for details!

Previous talks

- 15. June: Christopher **Drupieski** (University of Georgia), *Comparing low degree cohomology for algebraic groups and finite groups of Lie type*. abstract
- 14. June: Christopher **Drupieski** (University of Georgia), *Some quantum analogues of results from Lie algebra cohomology*. abstract
- 31. May: two shorter talks –
  - Julia **Worch**, *Equal images modules for elementary abelian p-groups*,
  - Julian **Külshammer**, *Skew-group algebras and Auslander-Reiten theory for half-quantum groups*.
- 24. May: Christian **Drenkhahn**, *Triangulated categories III: Examples*.
- 17. May: Dirk **Kirchhoff**, *Triangulated categories II: Definition and general properties*.
- 10. May: Julia **Worch**, *Triangulated categories I: Additive and abelian categories*.
- 03. May: Jean Marie **Bois**, *Introduction to finite W-algebras V: Higher-level Schur duality*.
- 26. April: Jean Marie **Bois**, *Introduction to finite W-algebras IV: The Skryabin equivalence*.
- 19. April: Jean Marie **Bois**, *Introduction to finite W-algebras III: Good **Z**-gradings in type A*.
- 12. April: Jean Marie **Bois**, *Introduction to finite W-algebras II: Three definitions of finite W-algebras*.

Archive

Winter term 2010/2011

- 08. February: Jean Marie **Bois**, *Introduction to finite W-algebras I: Nilpotent orbits in reductive Lie algebras*.
- 25. January: Dirk **Kirchhoff**, *Maximal Jordan types of finite groups*.
- 18. January: Philipp **Lampe** (Bielefeld), *Quantum cluster algebras and the dual canonical basis*. abstract
- 21. December: Markus **Schmidmeier** (Florida Atlantic University), *Linear operators with two invariant subspaces: the Swiss Cheese theorem, and an application in system theory*.
- 14. December: Eric **Henack**, *Modules of constant Jordan type with one non-projective block*.
- 07. December: Gil **Vernik**, *On maximal subfields in division rings*.
- 23. November: Janine **Bastian** (Hannover), *Mutation classes and cluster-tilted algebras of type $\tilde{A}$*
- 09. November: Julian **Külshammer**, *Periodic quantum components are homogeneous tubes*.
- 02. November: Daiva **Pucinskaite**, *$\leq$ - properties of 1-quasi-hereditary algebras*.
- 26. October: Rolf **Farnsteiner**, *Reductive Groups, Nilpotent Orbits and Varieties of Verma Modules*.

Summer term 2010

- 13. July: Eric **Henack**, *Specialization of π-points and constant Jordan type*.
- 06. July: Rolf **Farnsteiner**, *Auslander-Reiten components for G_rT-modules and good filtrations*.
- 29. June: Jean-Marie **Bois**, *Burnside's theorem for Hopf algebras*.
- 22. June: Yorck **Sommerhäuser** (University of South Alabama), *Cauchy's Theorem for Hopf Algebras*. abstract
- 15. June: Gil **Vernik**, *Reduction results for enveloping algebras of Lie algebras in prime characteristics*.
- 08. June: Daiva **Pucinskaite**, *Ringel-duality on generator-cogenerators for local self-injective algebras*.
- 01. June: Julian **Külshammer**, *Small quantum groups are totally wild*.
- 18. May: Gil **Vernik**, *Enveloping algebras in positive characteristics*.
- 11. May: Bin **Shu** (Shanghai/Kiel), *The centers of the universal enveloping algebras of Lie superalgebras in prime characteristic*.
- 27. April: Julia **Worch**, *The strong no loop conjecture for special biserial algebras*.
- 20. April: Jean Marie **Bois**, *Weyl groups for non-classical restricted Lie*

algebras and applications. The slides can be downloaded here.
- 13 April: Khalid **Rian** (Århus/Kiel), *Restricted Lie algebras and Cartan type algebras*.

Winter term 2009/2010

- 05. February: Siyka **Andreeva**, *Subgroup lattices of groups*.
- 29. January: Daiva **Pucinskaite**, *Quasi-hereditary algebras in Representation Theory*.
- 22. January 2010: Nils **Mahrt** (Bielefeld), *Full subcategories of hereditary categories which are tubes*.
- 15. January 2010: Julian **Külshammer**, *Biserial algebras and the finitistic dimension conjecture*.
- 08. January 2010: Julian **Külshammer**, *Quiver representations, Auslander-Reiten theory, and the knitting algorithm*.
- 18. December 2009: Olivier **Brunat** (Bochum), *On the inductive McKay condition*.
- 11. December 2009: Eric **Henack**, *The space of p-points*.
- 04. December 2009: Jean-Marie **Bois**, *Complexity of modules and the Friedlander-Suslin Theorem*. An extended version of the slides is available here.
- 27. November 2009: Daiva **Pucinskaite**, *Restricted Lie algebras*.
- 20. November 2009: Markus **Severitt** (Bielefeld), *Simple Representations of* $Aut(k[x_1,...,x_n]/(x_1^p,...,x_1^p))$. abstract
- 13. November 2009: Julia **Worch**, *Algebras of measures*.
- 06. November 2009: Christine **Schneider**, *Hopf algebras and group schemes*.

Conferences and Lecture series

- 13th NWDR Workshop in Kiel, 05 – 06 June 2009.
- Mercator Seminar. Lectures by JM. Bois, S. Doty and R. Farnsteiner.
- Reading seminar on Schur algebras.

Jean Marie Bois
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