

GENERALIZED HEISENBERG ALGEBRAS AND THEIR POISSON SEMICLASSICAL LIMIT

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This talk will be about the Weyl algebras and some of their important structures and also the generalized Weyl algebras, generalized Heisenberg algebras and their relations and some of their important examples and structures (their Poisson structures). At the end we will try to have a short introduction to the Dixmier and the Jacobian conjecture and their equivalence and if time allows, we will have a walk through, for to get in the Belov-Kontsevich conjecture about the automorphism group of the n -th Weyl algebra.

REFERENCES

- [1] Belov-Kanel, Alexei, and Maxim Kontsevich. *The Jacobian conjecture is stably equivalent to the Dixmier conjecture*. Mosc. Math. J 7.2 (2007): 209-218.
- [2] Belov-Kanel, Alexei, and Maxim Kontsevich. *Automorphisms of the Weyl algebra*. Letters in mathematical physics 74.2 (2005): 181-199.
- [3] Kanel-Belov, Alexei, Andrey Elishev, and Jie-Tai Yu. *Automorphisms of Weyl Algebra and a Conjecture of Kontsevich*. arXiv preprint arXiv:1802.01225 (2018).
- [4] Vladimir V. Bavula. *Generalized Weyl algebras and their representations*. St. Petersburg Mathematical Journal 4 (1993), no. 1, 71-92.
- [5] Rencai Lü and Kaiming Zhao. *Finite-dimensional simple modules over generalized Heisenberg algebras*. Linear Algebra Appl., 475:276–291, 2015.
- [6] Samuel A. Lopes. *Non-Noetherian generalized Heisenberg algebras*. J. Algebra Appl., 16(2):1750064, 2017.
- [7] Van den Essen, Arno. *Polynomial Automorphisms: and the Jacobian Conjecture*. Vol. 190. Birkhäuser, 2012.

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