# EXISTENCE OF L\_∞ QUASI-ISOMORPHISMS FOR POLYDIFFERENTIAL OPERATORS WITH CONSTANT COEFFICIENTS

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| **ABSTRACT**  M. Kontsevich proved in his groundbreaking paper that there exists an L\_∞ quasi-isomorphism from the graded Lie algebra of polyvector fields on the affine space to the differential graded (dg) Lie algebra of polydifferential operators on .    The coefficients entering Kontsevich’s L\_∞ quasi-isomorphism are hard to compute, even for simple graphs. The situation simplifies dramatically if we consider the algebra of polydifferential operators on with constant coefficients.    In this talk, we prove that there exists L\_∞ quasi-isomorphisms from the graded Lie algebra of polyvector fields on the affine space with constant coefficients to the dg Lie algebra of polydifferential operators on with constant coefficients.    In our proof, we recall the notion of a stable formality quasi- isomorphism (SFQ). Finally, we use the fact that any SFQ gives us an L\_∞ quasi-isomorphism from the graded Lie algebra of polyvector fields on the affine space to the dg Lie algebra of polydifferential operators on .        **References:**  [1] Dolgushev, V. A. (2021). Stable Formality Quasi-isomorphisms for Hochschild Cochains, *M´em. Soc.Math. Fr.* (N.S.)168(2021), vi+108 pp.  [2] Dolgushev, V. A., Hoffnung A.E. , and Rogers C. L. (2015) What do homotopy algebras form? *Adv. Math*. 274 562–605  [3] Dolgushev V. A. and Rogers C.L. (2015) A Version of the Goldman-Millson theorem for filtered L\_∞ algebras, *J. Algebra* 430 260–302.  [4] Kontsevich, M. (2003).Deformation quantization of Poisson manifolds, *Lett. Math. Phys*., 66, 157-216; q-alg/9709040. |
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