# 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 $ℝ^{d }$ to the differential graded (dg) Lie algebra of polydifferential operators on $ℝ^{d }$.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 $ℝ^{d }$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 $ℝ^{d }$with constant coefficients to the dg Lie algebra of polydifferential operators on $ℝ^{d }$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 $ℝ^{d }$ to the dg Lie algebra of polydifferential operators on $ℝ^{d }$.**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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# Keywords: L\_∞ quasi-isomorphism, stable formality quasi-isomorphisms.