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**Dmitriy M Stolyarov\*** ([dms@math.msu.edu](mailto:dms@math.msu.edu)). *Anisotropic Ornstein non-inequalities.*

We investigate existence of a priori estimates for differential operators in  $L^1$  norm: for anisotropic homogeneous differential operators  $T_1, \dots, T_\ell$ , we study the conditions under which the inequality

$$\|T_1 f\|_{L^1(\mathbb{R}^d)} \lesssim \sum_{j=2}^{\ell} \|T_j f\|_{L^1(\mathbb{R}^d)}$$

holds true. This is a generalization of the classical Ornstein theorem. Using a certain Bellman function, we are able to translate the problem from the language of differential operators to the language of separately convex functions. In this second world, the Ornstein problem appears to be quite elementary.

We also discuss a similar problem for martingale transforms. The talk is based on the joint work with Krystian Kazaniecki and Michal Wojciechowski, see the preprint *Anisotropic Ornstein non-inequalities*, <http://arxiv.org/abs/1505.05416>. (Received January 12, 2016)