

Discrete multiple orthogonal polynomials on shifted lattices**05.11****Alexander Dyachenko***(University College London, UK / Keldysh Institute of Applied Math., Moscow, Russia)***Time:** Tuesday 23.07., 11:30 - 12:00, Room HS 3

Abstract: There are many ways to define multiple orthogonal polynomials with respect to the classical continuous weights. The approach as in [1,2,3] preserves a kind of the Rodrigues formula, which is a very useful property. We focus on adapting this approach for the discrete case — bearing in mind the deep connection between the classical discrete and continuous orthogonality.

The talk is devoted to a new class of polynomials of multiple orthogonality with respect to the product of classical discrete weights on integer lattices with noninteger shifts. We obtain explicit representations in the form of the Rodrigues formulas. The case of two weights will be presented in more detail.

This is joint work with Vladimir Lysov.

- [1] A. I. Aptekarev. Multiple orthogonal polynomials. *J. Comput. Appl. Math.* 99 (1998), no. 1–2, 423–447.
- [2] A. I. Aptekarev, F. Marcellán, I. A. Rocha. Semiclassical multiple orthogonal polynomials and the properties of Jacobi-Bessel polynomials. *J. Approx. Theory* 90 (1997), no. 1, 117–146.
- [3] W. Van Assche, E. Coussement. Some classical multiple orthogonal polynomials. *J. Comput. Appl. Math.* 127 (2001), no. 1–2, 317–347.