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**Seminar of the Department of Mathematics and Statistics, University of Cyprus**

Room: 038, ΣΘΕΕ01. Date: 06/06/2017 Time: 12:00

**Speaker :** A. I. Aptekarev (Keldysh Institute of Applied Mathematics RAS)

**Title :** Ensembles of normal matrices and Orthogonal polynomials on a plane.

**Abstract:**

We discuss a connection between ensembles of random matrices and asymptotics of the orthogonal polynomials. We consider several examples of such ensembles (we call them orthogonal polynomials ensembles), but our main attention will be devoted to the normal matrices ensembles, which have many interesting applications (Laplacian growth, Diffusion limited aggregation). An important feature of the orthogonal polynomials ensembles of random matrices is that the joint probability density of their eigenvalues is represented by means of the determinants composed by Christoffel - Darboux (CD) kernels of orthogonal polynomials

or their generalizations (for example multiple orthogonal polynomials). For the normal matrices ensembles the corresponded CD kernel is taken for polynomials orthogonal with respect to an area measure

In our talk we consider open problems which the normal random matrices theory proposes to the orthogonal polynomials theory.