

FUNCTIONAL LIMIT THEOREM
FOR THE DETERMINANTAL SINE-PROCESS

Andrey Dymov

Steklov Mathematical Institute of RAS, Moscow, Russia

`adymov88@gmail.com`

Determinantal (fermion) random point processes arise naturally in physics and different areas of mathematics. In particular, they play a central role in the random matrix theory. It is known that a large class of determinantal processes satisfies the Central Limit Theorem. For many dynamical systems satisfying the CLT the Donsker Invariance Principle (Functional Central Limit Theorem) also takes place. Roughly speaking, it states that asymptotic behavior of trajectories of the system is governed by the Brownian motion. I will present results of my joint work with A. Bufetov, where we obtain a Functional Limit Theorem for the sine-process, which is one of the most important determinantal processes. We find that its asymptotic behavior is very different from the Brownian motion and is governed by a Gaussian process with completely different behavior.