

Functional Central Limit Theorem for the Sine-process

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It is well-known that, under mild assumptions, determinantal random point processes satisfy the Central Limit Theorem. The natural question is what about the Functional Central Limit Theorem? Studying this problem on the example of the famous Sine-process, we show that trajectories of the latter have rather unusual behaviour. In an integral sense they can be approximated by a Gaussian process behaving as small fluctuations around a linear in time random function. In particular, the trajectories can not be approximated by the Brownian motion.