## Integrability in Condensed Matter Physics and Quantum Field Theory



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## Talk: Separation of variables and correlation functions from spin chains to CFT

Friday 10 February 2023 18:20 (55 minutes)

I will present new results in the separation of variables (SoV) program for integrable models. The SoV is expected to be very powerful but until recently has been almost undeveloped beyond the simplest gl(2) examples. I will describe how to realize the SoV for any gl(N) spin chain and demonstrate how to solve the longstanding problem of deriving the scalar product measure in SoV. Using these results I will show how to compute a large class of correlation functions and overlaps in a compact determinant form. I will also demonstrate the power of SoV in 4d integrable CFT's such as the fishnet theory. In addition, I will present related results on Yangian symmetry for correlators in the most general 'loom' fishnet CFT in any (even) dimension. Lastly I will outline highly promising applications in computation of exact correlators in N=4 super Yang-Mills theory.

Presenter: Dr LEVKOVICH-MASLYUK, Fedor (IPhT, Saclay)