Contribution ID: **20** Type: **20 Min Talk**

GUE-corners process in the Aztec diamond

Monday, 3 July 2023 15:00 (30 minutes)

Random tiling problems, or perfect matchings, constitute a certain class of exactly solvable models studied by both mathematicians and mathematical-physicists since the 20-th century. These models can be viewed as a playground where some universal behaviours take place, and they are particularly interesting as much for their links with other statistical models as for their rich mathematical structure.
In this presentation, I will speak about the Aztec diamond model which exhibits an arctic phenomenon (i.e. spatially separated regions with different behaviours) similar to what happens in the 6-vertex model with domain-wall boundary conditions. More specifically, I will focus on a specific determinantal point process occurring in this model and show its quite surprising link with the GUE-corners distribution coming from the Random Matrix Theory.

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Track Classification: Participants Talks