

Institute for Applied Mathematics, Bonn University

Oberseminar Stochastik

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Doubly periodic weighted tilings of the Aztec diamond

In recent years important progress has been made in the understanding of random tilings of large Aztec diamonds with doubly periodic weights. Due to the double periodicity a new phase appears that has not been observed in tiling models with uniform weights. One of the challenges in the analysis of this type of models is to find expressions of for the correlation functions that are amenable for asymptotic studies. In the case of the uniform weight the model is an example of a Schur process and, consequently, such expressions for the correlation functions are known and well-studied. The doubly periodic weightings seem to be of a more complicated nature and the purpose of this talk is to discuss a general integrable structure that doubly periodic weightings of the Aztec diamond obey. In certain cases, this integrable structure paves the way for an asymptotic analysis by means of saddle point analysis and several examples will be discussed in this talk.