

Gap probabilities in tiling models and Painlevé equations

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We consider tilings of a hexagon by rombi, viewed as 3D random stepped surfaces with a measure proportional to $q^{-Volume}$. Such model is closely related to q -Hahn orthogonal polynomial ensembles, and we use this connection to obtain results about the local behavior of this model. In terms of the q -Hahn orthogonal polynomial ensemble, our goal is to show that the one-interval gap probability function can be expressed through a solution of the asymmetric q -Painlevé V equation.