

Discrete holomorphicity and critical boundary fugacity for the $O(n)$ model on the honeycomb lattice

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Smirnov's discrete parafermion can be generalised to the $O(n)$ model on the honeycomb lattice with a boundary. The discrete holomorphicity conditions for this parafermion naturally predict the value of the boundary fugacity corresponding to the special boundary transition. In the case of self-avoiding walks ($n=0$) we provide a path to a rigorous proof that this value is indeed the critical boundary fugacity.