

# VORONOÏ PERCOLATION IN THE HYPERBOLIC PLANE

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ABSTRACT. We consider site percolation on Voronoï cells generated by a Poisson point process on the hyperbolic plane  $\mathbb{H}^2$ . Each cell is coloured black independently with probability  $p$ , otherwise the cell is coloured white. Benjamini and Schramm proved the existence of three phases: For  $p \in [0, p_c]$  all black clusters are bounded and there is a unique infinite white cluster. For  $p \in (p_c, p_u)$ , there are infinitely many unbounded black and white clusters. For  $p \in [p_u, 1]$  there is a unique infinite black cluster and all white clusters are bounded. The critical values  $p_c$  and  $p_u$  depend on the intensity of the Poisson point process. We prove that both  $p_c$  and  $p_u$  tend to  $1/2$  as the intensity tends to infinity. This confirms a conjecture of Benjamini and Schramm.

(Based on joint work with Tobias Müller)