A 0-1 law for vertex-reinforced random walks on $\mathbb{Z}$ with weight of order k^α, $\alpha<1/2$

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We prove that Vertex Reinforced Random Walk on $\mathbb{Z}$ with weight of order k^α, with $\alpha\in [0,1/2)$, is either almost surely recurrent or almost surely transient. This improves a previous result of Volkov who showed that the set of sites which are visited infinitely often was a.s. either empty or infinite.

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