On the surjectivity probability of random Bernoulli matrices

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For a random $\{0, 1\}$ matrix of size n by $n + u$ we study the probability that it is surjective as linear map from $\mathbb{Z}^{n+u}$ to $\mathbb{Z}^n$. We show this probability is asymptotically the infinite product of $1/\zeta(k)$, $k \geq u + 1$ as n goes to infinity. Mysteriously, this statistics is universal with respect to most matrix models.

Based on joint work with M. M. Wood.