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On the proportion of everywhere locally soluble superelliptic curves

We investigate the proportion of superelliptic curves that have a \mathbb{Q}_p point for every place p of \mathbb{Q} . We show that this proportion is positive and given by the product of local densities, we provide lower bounds for this proportion in general, and for superelliptic curves of the form $y^3 = f(x, z)$ for an integral binary form f of degree 6, we determine this proportion to be 96.94%. More precisely, we give the local density as an explicit rational function in p . This is joint work with Christopher Keyes.