

# COUNTING PLANE MUMFORD CURVES

PATRICK ERIK BRADLEY

A  $p$ -adic version of Gromov-Witten invariants for counting plane curves of genus  $g$  and degree  $d$  through a given number of points is discussed. The multiloop version of  $p$ -adic string theory considered by Chekhov and others would then ask, how many of these curves are Mumford curves, i.e. uniformisable by a domain at the boundary of the Bruhat-Tits tree for  $\mathrm{PGL}_2(\mathbb{Q}_p)$ . Via tropical geometry it is shown that generically Mumford curves are enumerated. In the general case, the number of Mumford curves depends on the position of the given points in  $\mathbb{P}^2$ . As an introduction, we report on the case of instantons with target  $\mathbb{P}^1$ .