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**Adrian Iovita\*** (iovita@mathstat.concordia.ca), Department of Mathematics, Concordia University, 1455 de Maisonneuve West Blvd., Montreal, QC H3G 1M8, Canada. *A  $p$ -adic criterion for good reduction of curves over a  $p$ -adic field.*

Let  $X$  be a smooth, proper curve over a finite extension  $K$  of  $\mathbb{Q}_p$  and let us suppose that  $X$  has a  $K$ -rational point  $x$ . Let  $\pi$  denote the (etale) unipotent (geometric) fundamental group attached to the pair  $X, x$  and for every natural number  $n$  let  $\pi[n]$  denote the quotient of  $\pi$  by its natural  $n$ -th step filtration. Then  $\pi[n]$  is a finite dimensional  $\mathbb{Q}_p$ -vector space with a continuous action by  $G_K$ , the absolute Galois group of  $K$ .

Together with Fabrizio Andreatta and Minhyong Kim we have proved:  $X$  has good reduction over  $\mathcal{O}_K$  if and only if  $\pi[n]$  is a crystalline  $G_K$ -representation for all  $n$ . (Received September 20, 2011)