1042-11-14 **Alvaro Lozano-Robledo***, Department of Mathematics, 196 Auditorium Road, University of Connecticut, Storrs, CT 06269-3009. *Ranks of abelian varieties over infinite extensions of the rationals.*

Let S be an infinite set of rational primes and, for some $p \in S$, let $\mathbb{Q}_S^{(p)}$ be the compositum of all extensions unramified outside S of the form $\mathbb{Q}(\mu_p, \sqrt[p]{d})$, for $d \in \mathbb{Q}^\times$. If $(\sigma) = (\sigma_1, \ldots, \sigma_n) \in \mathrm{Gal}(\bar{\mathbb{Q}}/\mathbb{Q})^n$, let $(\mathbb{Q}_S^{(p)})^{(\sigma)}$ be the intersection of the fixed fields by $\langle \sigma_i \rangle$, for $i = 1, \ldots, n$. We provide a wide family of elliptic curves $E/\mathbb{Q}$ such that the rank of $E((\mathbb{Q}_S^{(p)})^{(\sigma)})$ is infinite for all $n \geq 0$ and all $(\sigma) \in \mathrm{Gal}(\bar{\mathbb{Q}}/\mathbb{Q})^n$, subject to the parity conjecture.

As a consequence, we prove a strengthened version of a conjecture of M. Larsen in a large number of cases. (Received June 20, 2008)