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Hester K. S. Graves* (gravesh@mast.queensu.ca) and **M. Ram Murty**. *The abc Conjecture and non-Wieferich primes in Arithmetic Progressions.*

Silverman proved that, if one assumes the abc conjecture, then there are $\gg \log x$ non-Wieferich primes for base a for all $a \geq 2$. We show that for any $a \geq 2$ and any fixed $k \geq 2$, there are $\gg \log x / \log \log x$ primes $p \leq x$ such that $a^{p-1} \not\equiv 1 \pmod{p^2}$ and $p \equiv 1 \pmod{k}$, under the assumption of the abc conjecture. MSC 11A41, 11B25. (Received August 14, 2012)