1046-11-1944 **james arthur cipra*** (cipra@math.ksu.edu), 15845 6th st rd, wamego, KS 66547. *Waring's number in a finite field.* Preliminary report.

Let p be a prime, n be an integer, $k|p^n-1$, and $\gamma(k,p^n)$ be the minimal value of s such that every number in $\mathbb{F}_{p^n}$ is a sum of s k^{th} powers (should such exist). Heilbronn conjectured that for $\mathbb{F}_p$ that $\gamma(k,p) \ll \sqrt{k}$ if there are more than 2 non-zero k^{th} powers in $\mathbb{F}_p$. Here we provide an outline of a proof for a generalization to $\mathbb{F}_{p^n}$. (Received September 16, 2008)