

ESTIMATION OF THE QUANTITY

$$\mathcal{M}_n := \min\{a^{p^{n-1}} \pmod{p^n} \mid 2 \leq a \leq p-1\}.$$

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ABSTRACT. We show how bounds on $\mathcal{M}_n := \min\{a^{p^{n-1}} \pmod{p^n} \mid 2 \leq a \leq p-1\}$ can be obtained from bounds on Heilbronn type exponential sums $H_{p^n}(y)$, where $H_{p^n}(y) := \sum_{x=0}^{p-1} e_{p^n}(yx^{p^{n-1}})$ with $e_{p^n}(x) := e^{2\pi ix/p^n}$.

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