Abstract of paper [1].

Let $1 < k < 33/29$. We prove that if $\lambda_1, \lambda_2$ and $\lambda_3$ are non-zero real numbers, not all of the same sign and such that $\lambda_1 / \lambda_2$ is irrational, and $\gamma$ is any real number, then for any $\varepsilon > 0$ the inequality $|\lambda_1 p_1 + \lambda_2 p_2^2 + \lambda_3 p_3^k - \gamma| \leq (\max_j p_j)^{-\left(\frac{33 - 29k}{72k}\right) + \varepsilon}$ has infinitely many solutions in prime variables $p_1, p_2, p_3$.

References