

**Abstract of paper [1].**

We prove that if  $\lambda_1, \lambda_2, \lambda_3$  and  $\lambda_4$  are non-zero real numbers, not all of the same sign,  $\lambda_1/\lambda_2$  is irrational, and  $\alpha$  is any real number then, for any  $\varepsilon > 0$  the inequality  $|\lambda_1 p_1 + \lambda_2 p_2^2 + \lambda_3 p_3^2 + \lambda_4 p_4^2 - \alpha| \leq (\max_j p_j)^{-1/18+\varepsilon}$  has infinitely many solutions in prime variables  $p_1, \dots, p_4$ .

## References

- [1] A. Languasco and A. Zaccagnini. A Diophantine problem with a prime and three squares of primes. *J. Number Theory*, 132:3016–3028, 2012.