Danny Nguyen* (anuindale@gmail.com), 530 Church Street, 2074 East Hall, Ann Arbor, MI 48109-1043, and Igor Pak (pak@math.ucla.edu), 520 Portola Plaza, Math Sciences Building 6363, Los Angeles, CA 90095. Integer points in translated and expanded polyhedra.

We prove that the problem of minimizing the number of integer points in parallel translations of a rational convex polytope in $\mathbb{R}^6$ is NP-hard. We apply this result to show that given a rational convex polytope $P \subset \mathbb{R}^6$, finding the largest integer $t$ such that the expansion $tP$ contains fewer than $k$ integer points is also NP-hard. We conclude that the Ehrhart quasi-polynomials of rational polytopes can have arbitrary fluctuations. (Received February 03, 2019)