1135-VS-1553 **Constantin N. Beli**, **Wai Kiu Chan**, **Maria Ines Icaza** and **Jingbo Liu*** (jliu02@hku.hk).
On a Waring's problem for integral quadratic and hermitian forms.

For each positive integer n, let $g_{\mathbb{Z}}(n)$ be the smallest integer such that if an integral quadratic form in n variables can be written as a sum of squares of integral linear forms, then it can be written as a sum of $g_{\mathbb{Z}}(n)$ squares of integral linear forms. We show that as n goes to infinity, the growth of $g_{\mathbb{Z}}(n)$ is at most an exponential of $\sqrt{n}$. Our result improves the best known upper bound on $g_{\mathbb{Z}}(n)$ which is in the order of an exponential of n. We also define an analogous number $g^*_{\mathcal{O}}(n)$ for writing hermitian forms over the ring of integers $\mathcal{O}$ of an imaginary quadratic field as sums of norms of integral linear forms, and when the class number of the imaginary quadratic field is 1, we show that the growth of $g^*_{\mathcal{O}}(n)$ is at most an exponential of $\sqrt{n}$. (Received September 23, 2017)