

## Orbits of operators tending to infinity

Jan Vršovský, Charles University in Prague, Czech Republic

(Joint work with Vladimír Müller)

Let  $T$  be a bounded linear operator. We examine a problem whether there is a unit vector  $x$  such that  $\|T^n x\| \rightarrow \infty$ . Using Keith Ball's plank theorems, we prove that on a Banach space, a sufficient condition is  $\sum_{n=1}^{\infty} \frac{1}{\|T^n\|} < \infty$ , while on a complex Hilbert space, it is  $\sum_{n=1}^{\infty} \frac{1}{\|T^n\|^2} < \infty$ . The above results are the best possible. We also show analogous results for weak orbits.