



Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: April 2025

Is there an infinite sequence $\{a_i\}_{i=1}^{\infty}$ of positive real numbers such that

$$\sum_{i=1}^n a_i \geq n^2 \quad \text{and} \quad \sum_{i=1}^n a_i^2 \leq n^3 + 2025n$$

for each positive integer n ?