



Bilkent University  
Department of Mathematics

## PROBLEM OF THE MONTH

**Term:** January 2023

Find the maximal possible number of ordered pairs  $(i, j)$  satisfying

$$\frac{a_i^2}{4} + a_j \geq \frac{1}{2022}$$

where  $a_1, a_2, \dots, a_{2023}$  are non-negative real numbers satisfying  $a_1 + a_2 + \dots + a_{2023} = 1$ .