Bilkent University
Department of Mathematics

PROBLEM OF THE MONTH

Term: October 2009

Let Δ be a real number such that:

For arbitrary set $A = \{a_1 = 0, a_2 = 1, a_3, \cdots, a_{2009}\}$, with $0 \leq a_i \leq 1$ there exists its subset A' such that the difference between the arithmetic means of A' and $A - A'$ is not less then Δ.

Find the maximal possible value of Δ.