



Bilkent University
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PROBLEM OF THE MONTH

Term: December 2009

A point $x \in [0, 1]$ is said to be a good point if for any interval $[a, b] \subset [0, 1]$ there exists a natural number n such that $\{2^n x\} \in [a, b]$. ($\{\cdot\}$ is the fractional part function). Prove that there are infinitely many good points.