

**Horst Alzer**

***An inequality for the coefficients of a cosine polynomial***

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**Abstract:** We prove: If

$$\frac{1}{2} + \sum_{k=1}^n a_k(n) \cos(kx) \geq 0 \text{ for all } x \in [0, 2\pi),$$

then

$$1 - a_k(n) \geq \frac{1}{2} \frac{k^2}{n^2} \text{ for } k = 1, \dots, n.$$

The constant  $1/2$  is the best possible.

**Keywords:** cosine polynomials, inequalities

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