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Inequalities Between the Sum of Squares and the Exponential of Sum of a Nonnegative Sequence

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Abstract: Using a standard argument, the following inequality between the sum of squares and the exponential of sum of a nonnegative sequence is established:

$$\frac{e^2}{4}\sum_{i=1}^{n} x_i^2 \le \exp\left(\sum_{i=1}^{n} x_i\right),$$

where $n \ge 2$, $x_i \ge 0$ for $1 \le i \le n$, and the constant $\frac{e^2}{4}$ is the best possible.