INEQUALITIES FOR THE INCENTER SIMPLICES

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Abstract. Let \( I_i (i = 0, 1, 2, \ldots, n) \) denote the incenter of facet \( F_i \) of an \( n \)-dimensional simplex \( \Omega_A \) and we call \( \Omega_I = \text{conv}\{I_0, I_1, \ldots, I_n\} \) the incenter simplex of \( \Omega_A \). In [3], L. H. Tang and G. S. Leng conjectured

\[ V(\Omega_I) \leq \frac{1}{n^n} V(\Omega_A), \]

with equality if and only if \( \Omega_A \) is a regular simplex. In this paper, we give a positive answer of the conjecture. Further, we improve the condition of the equality holds.


Key words and phrases: tangent points simplex, orthocentric simplex, incenter simplex.

REFERENCES