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If $a, b, c > 0$, $\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} \leq 3$ then:

$$\frac{1}{(a+b)^2} + \frac{1}{(b+c)^2} + \frac{1}{(c+a)^2} \leq \frac{3}{4}$$

Proposed by Nguyen Hung Cuong-Vietnam

Solution by Tapas Das-India

$$\begin{aligned} \frac{1}{(a+b)^2} + \frac{1}{(b+c)^2} + \frac{1}{(c+a)^2} &\stackrel{AM-GM}{\leq} \sum \frac{1}{4ab} = \frac{1}{4} \sum \frac{1}{ab} \leq \\ &\leq \frac{1}{4} \sum \frac{1}{a^2} \leq \frac{3}{4} \left(\text{since } \sum \frac{1}{a^2} \leq 3 \right) \end{aligned}$$