## ROMANIAN MATHEMATICAL MAGAZINE

In $\triangle A B C$ the following relationship holds:

$$
27\left(\sum_{c y c} a^{2}\right)^{2}-54 \sum_{c y c} a^{4} \leq 16 s^{4}
$$

Proposed by Neculai Stanciu-Romania

## Solution by Tapas Das-India

$$
\begin{gathered}
16 F^{2}=2 \sum a^{2} b^{2}-\left(\sum a^{4}\right) \\
27\left(\sum a^{2}\right)^{2}-54 \sum a^{4}=27 \sum a^{4}+54 \sum a^{2} b^{2}-54 \sum a^{4}= \\
=27 \cdot\left(2 \sum a^{2} b^{2}-\left(\sum a^{4}\right)\right)=27 \cdot\left(16 F^{2}\right)= \\
=27 \cdot 16 \cdot r^{2} s^{2} \quad \begin{array}{c}
\text { Mitrinovic } \\
\leq
\end{array} 27 \cdot 16 \cdot \frac{s^{2}}{27} \cdot s^{2}=16 s^{4} \\
\text { Equality holds for } a=b=c .
\end{gathered}
$$

