CATER TYPE INEQUALITIES INVOLVING CATER PRODUCTS AND THEIR APPLICATIONS IN SPACE SCIENCE

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Abstract. By means of the mathematical induction, stepwise adjustment method and the reorder method, under the proper hypotheses, we established the following Cater type inequalities involving Cater products:

\[ X \otimes Y \geq K X \otimes Y \geq K^+ X \otimes Y > e^{-1} \text{ and } f \otimes g \geq f(1-t) \otimes g > e^{-1}. \]

As applications, we solved the problem which proposed by M. Laub, Jerusalem and Israel under the proper hypotheses, and an \( l \)-isoperimetric inequality in the centered \( n \)-surround system \( S^{(2)}\{P, \Gamma, I\} \) is obtained as follows:

\[ [\mu] \otimes [I] \geq \left( \frac{|\Gamma|}{n} \right)^{\frac{2\pi}{n}}. \]


Keywords and phrases: Cater product, Cater inequality, comonotone, Chebyshev inequality, \( l \)-isoperimetric inequality.

REFERENCES


