SHARP INEQUALITIES FOR THE SQUARE FUNCTION OF
A NONNEGATIVE MARTINGALE

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Abstract: We determine the optimal constants $C_p$ and $C^*_p$ such that the following holds: if $f$ is a nonnegative martingale and $S(f)$ and $f^*$ denote its square and maximal functions, respectively, then

$$\|S(f)\|_p \leq C_p \|f\|_p, \quad p < 1,$$

and

$$\|S(f)\|_p \leq C^*_p \|f^*\|_p, \quad p \leq 1.$$

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The full text is available here