



Volume 6, Issue 3, Article 87

## A Minkowski-Type Inequality for the Schatten Norm

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**Keywords:** Schatten class, Schatten norm, Norm inequality, Minkowski inequality, Triangle inequality, Powers of operators, Schatten-Minkowski constant.

**Date Received:** 16/07/04

**Date Accepted:** 29/06/05

**Subject Codes:** 47A30, 47B10

**Editors:** [Frank Hansen](#),

**Abstract:** Let  $F$  be a Schatten  $p$ -operator and  $R, S$  positive operators. We show that the inequality  $|F(R+S)^{\frac{1}{c}}|_p^c \leq |FR^{\frac{1}{c}}|_p^c + |FS^{\frac{1}{c}}|_p^c$  for the Schatten  $p$ -norm  $|\cdot|_p$  is true for  $p \geq c = 1$  and for  $p \geq c = 2$ , conjecture it to be true for  $p \geq c \in [1, 2]$ , give counterexamples for the other cases, and present a numerical study for  $2 \times 2$  matrices. Furthermore, we have a look at a generalisation of the inequality which involves an additional factor  $\sigma(c, p)$ .



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