KWONG MATRICES AND OPERATOR MONOTONE FUNCTIONS ON $(0, 1)$

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This paper is dedicated to Professor Tsuyoshi Ando

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Abstract. In this paper we study positive operator monotone functions on $(0, 1)$ which have some differences from those on $(0, \infty)$: we show that for a concave operator monotone function $f$ on $(0, 1)$, the Kwong matrices $K_f(s_1, \ldots, s_n)$ are positive semidefinite for all $n$ and $s_i \in (0, 1)$, and $f(s^p)^{1/p}$ for $0 < p \leq 1$ and $s/f(s)$ are operator monotone. We also give a sufficient condition for the Kwong matrices to be positive semidefinite.

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