Bachelor Thesis abstract

Operator monotone and operator convex functions and applications

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Loewner's Theorem gives a handy condition for deciding whether a function is operator monotone or not. It also asserts that any operator monotone function is real analytic. Even n-monotone functions admit pleasant regularity properties by the behavior of the Dobsch matrix. Although the notion of operator monotonicity comes from finite dimensional definitions, it also inherits the monotonicity in the infinite dimensional case. Non-negative operator concave functions on $(0, \infty)$ are precisely the non-negative operator monotone functions on $(0, \infty)$. The operator means are in order isomorphism with the normalised non-negative operator monotone functions on $[0, \infty)$.