

# Inequalities for Positive Module Operators on von Neumann Algebras

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## Abstract

In this talk, we establish the Cauchy-Schwarz and Golden-Thompson inequalities for module operators, a generalization of a (noncommutative) conditional expectation, on a von Neumann algebra. We also apply these inequalities to the noncommutative Bennett inequality and a uncertainty relation, a generalization of the Schrödinger uncertainty relation, for conditional expectations. This talk is based on a joint work with Un Cig Ji and Yongdo Lim.