

# THE THEORY OF OPERATOR CONVEXITY AND ITS APPLICATIONS TO MATHEMATICAL PHYSICS AND QUANTUM INFORMATION THEORY

ICHIRO FUJIMOTO

Department of Mathematics and Sciences, Kanazawa Institute of Technology, Japan

**Abstract:** Introducing an operator convexity in the space of completely positive maps, we study some applications of this notion to the mathematical structure of quantum interactions, and propose new information quantities which recover the natural inequalities in the quantum information theory.