MP 1: Quantum Information: Entropy

Time: Monday 14:45–15:45   Location: KH 02.013

Invited Talk   MP 1.1   Mon 14:45   KH 02.013
The Wehrl entropy problem: mathematical physics meets complex analysis and representation theory — •Rupert Frank — LMU Munich

The coherent state transform, under various names, appears in many fields of mathematics and physics. It is associated with representations of a group. In this talk we give a gentle introduction to the (generalized) Wehrl entropy problem, which consists in minimizing the entropy of the coherent state transform of a quantum state.

Invited Talk   MP 1.2   Mon 15:15   KH 02.013
News on relative entropy — Ricardo Correa da Silva[1], •Markus B. Fröb[1], Gandalf Lechner[1], and Leonardo Sangaletti[2] — [1]Department Mathematik, FAU Erlangen-Nürnberg, Germany — [2]Dipartimento di Fisica, Università di Genova, Italy

I present recent work on a new integral representation for the relative entropy (or Kullback-Leibler divergence) for general von Neumann algebras, generalizing results for matrix algebras. This representation allows easy proofs of its properties such as joint convexity and an extended version of the data processing inequality, namely monotonicity under positive unit-preserving maps. Moreover, it can be used to define Csiszár's f-divergences for von Neumann algebras, which depend on an arbitrary convex function f, and which give the relative entropy in the special case $f(x) = x \ln x$.