JPhysA-113511 - View Abstract

> Effective methods for constructing extreme quantum observables

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The paper contributes to the important problem of understanding the convex structure of (finite outcome) POVMs (in finite dimensions). A description of the extreme POVMs is valuable also because in many situations such POVMs correspond to optimal measurements. The results bring an insight into the possible ranks of operators in an extreme POVM and propose a method of construction of such POVMs in some cases. Although the obtained descriptions do not cover all possibilities (as the authors admit) I find the results significant enough for publication. I have only a few minor comments: - p.2, second paragraph: since the authors work only with finite outcome measurements, I think it is enough just to say that the set of POVMs is the convex hull of extreme ones -p.2, l. 14: "ranks rank" -p.4, l.2: "show" -> shows -p.5 l.4: "\eta_s" -> \eta_1 - p.6, Thm. 2: it is not clear from the introduced notation that we can have t^r=0 -p.6, the proof of Thm. 2: "We" -> we -many places: "compliment" -> complement -p.9 (also Fig. 1) "braking" -> breaking