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Bratteli, O. (N-OSLO)**; Jorgensen, P. E. T.** (1-IA)**;**
Kishimoto, A. (J-HOKK)**; Werner, R. F.** (D-BRNS-MP)
Pure states on $\mathcal{O}_d$. (English. English summary)
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This paper contains a variety of results on states and representations of the Cuntz algebras O_d, building on the earlier work by two of the authors [O. Bratteli and P. E. T. Jorgensen, J. Funct. Anal. 145 (1997), no. 2, 323–373; MR 98c:46128]. In particular, if $S_i, 1 \leq i \leq d$, are the generators of O_d represented on a Hilbert space H, then subspaces K invariant under each of the S_i^* are considered. If P is the orthogonal projection from H onto K and $V_i = PS_i = PS_iP$, then a completely positive map $\sigma \colon B(K) \to B(K)$ is defined by $\sigma(X) = \sum V_i X V_i^*$, and interesting results on the structure of the restriction of the representation to the gauge-invariant UHF algebra UHF_d are obtained when O_d is represented irreducibly and $B(K)$ possesses a normal σ-invariant state. Applications to finitely correlated states on one-dimensional quantum spin chains are also obtained.

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