

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Pseudo-unitary freedom in the operator-sum representation**

YONG CHENG OU, Department of Chemistry, Texas Tech University, Lubbock, Texas 79409, MARK S. BYRD, Department of Physics and Department of Computer Science, Southern Illinois University, Carbondale, Illinois 62901 — A general dynamical map can be written in an operator-sum representation (OSR) by using a spectral decomposition, which needs not be completely positive. The OSR is not unique; there is freedom to choose a different set of operators in the OSR, yet still obtain the same map. We will show that, whereas the freedom for completely positive maps is unitary, the freedom for not completely positive maps is pseudo-unitary.

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Date submitted: 18 Nov 2010

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