Mary Beth Ruskai, Stanislaw Szarek and Elisabeth M Werner* (emw2@po.cwru.edu),
Department of Mathematics, Cleveland, OH 44106. An Analysis of Completely-Positive
Trace-Preserving Maps on $M_2$.

We give a useful new characterization of the convex set of all completely positive, trace-preserving maps $\Phi : M_2 \to M_2$
from which one can easily check any trace-preserving map for complete positivity. We also determine explicitly all extreme
points of this set, and give a useful parameterization after reduction to a certain canonical form. This allows a detailed
examination of an important class of non-unital extreme points which can be characterized as having exactly two images
on the Bloch sphere. (Received January 20, 2001)