

1120-47-63

**Douglas Farenick, Samuel Jaques and Mizanur Rahaman\*** (mizanur1@gmail.com). *Fidelity preservation in  $C^*$  algebras*. Preliminary report.

Fidelity provides a measure of distance between quantum states, where a quantum state is understood to be a density operator acting on a finite-dimensional Hilbert space. In quantum information theory, one is interested in the structure of positive trace-preserving linear maps that preserve fidelity for all pairs of states. In this lecture I will consider fidelity in a  $C^*$ -algebra  $A$  and describe the structure of positive trace-preserving linear maps on  $A$  that preserve fidelity. (Received February 08, 2016)