Abstract Submitted
for the 4CF15 Meeting of
The American Physical Society

The Effect of Preparation Uncertainty on Error-Disturbance Relations AJ RASMUSSON, JACOB "J" COLLINGS, JEAN-FRANCOIS S. VAN HUELE, Brigham Young University — Heisenberg's work on quantum uncertainty has developed into two distinct concepts. (1) Preparation uncertainty puts a limit on the joint precision with which two incompatible physical variables can be described in a given quantum state. (2) Measurement uncertainty puts a joint lower limit on the error in the measurement of one physical variable and the disturbance in another physical variable as a result of that same measurement. Specific measurement uncertainty relations are affected by state preparation. We explore these connections and extend previous work done on coherent states to squeezed and less-intelligent states.

Jean-Francois S. Van Huele
Brigham Young University

Date submitted: 04 Sep 2015 Electronic form version 1.4