Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

How to screw up your relative intensity measurement JAY EYRING, JUSTIN PEATROSS, SCOTT BERGESON, Brigham Young University — Relative intensity measurements are used for high-sensitivity and high accuracy absorption determinations. They require the detector response to be directly proportional to the input light signal, or at least to be a monotonic function of the input light signal. We have found small variations in the response linearity of photomultiplier tubes that do not conform to these constraints. This nonlinearity makes it impossible to measure 1% absorption with an accuracy better than 10%. In this paper we will discuss methods for correcting this error in low-light-level measurements.

Scott Bergeson
Brigham Young University

Date submitted: 28 Jan 2005 Electronic form version 1.4