Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Quantum Mechanics Laboratories using Correlated Photons.[1] ENRIQUE GALVEZ, Colgate University — Progress in laboratory techniques with correlated photons has allowed the implementation of table-top experiments for teaching undergraduate quantum mechanics. The experiments that we have developed [1] complement an undergraduate course on quantum mechanics. They use light at the quantum level to illustrate both fundamental and operational aspects of quantum mechanics. Laboratory experiments on interference of light with heralded photons, or with two correlated photons, going through an interferometer are vivid exercises on state superposition, state projection, and base rotation. Other experiments with entangled pairs address more fundamental aspects of quantum mechanics, including nonlocal correlations and violations of Bell Inequalities. [1] E.J. Galvez et al., Am. J. Phys. 73, 127 (2005).

[1]Funded by NSF grant DUE-0442882

Enrique Galvez
Colgate University

Date submitted: 27 Nov 2007 Electronic form version 1.4