1056-Z1-1670 **Douglas B Mathews*** (douglasbmathews@yahoo.com), 1640 Hope Dr, #1017, Santa Clara, CA 95054, and **Jake Askeland**, **Cheuk Wong**, **Miranda Braselton**, **David Von Gunten**, **Jonathan Baptist**, **Duncan McElfresh** and **Slobodan Simic**. *Adapting the Feynman Path Integral for use in a discrete spacetime.*

The Feynman Path Integral is a quantity that gives the probability amplitude of a photon to transition from one point in spacetime to another. This research was part of a program through the San Jose State University CAMCOS undergraduate research program in Spring 2009. Part of the goal of the research was to determine a method of computing the Feynman Path Integral in a discrete universe. We approximated a discrete universe with a large matrix, where each entry is a discrete place in spacetime, so the matrix is the whole of the universe. We were then able to define a probability amplitude for a transition to any space within our universe by defining action in the discrete spacetime. By then taking the geometric series of our matrix of probability amplitudes, we can take into account all paths of any length between two states in spacetime, and determine a quantity much like the Feynman Path Integral. This research was sponsored by Dr. Jeffrey Scargle from the NASA Ames Research Center. (Received September 22, 2009)