Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Free-time and Fixed End-point Multi-target Optimal Control Theory: Application to Quantum Computing[1] KENJI MISHIMA, KOICHI YAMASHITA, The University of Tokyo, JST-CREST — An extension of monotonically convergent free-time and fixed end-point optimal control theory (FRFP-OCT) to monotonically convergent free-time and fixed end-point *multi-target* optimal control theory (FRFP-MTOCT) is presented. The features of our theory include optimization of the laser pulses with high transition probabilities, that of the temporal duration, the monotonic convergence, and the ability to optimize multiple-laser pulses simultaneously. The advantage of the theory and a comparison with conventional fixed-time and fixed end-point multi-target optimal control theory (FIFP-MTOCT) are presented by comparing data calculated using the present theory with those published previously [K. Mishima and K. Yamashita, Chem. Phys. **361**, 106 (2009)], where qubit system of interest consists of two polar NaCl molecules coupled by dipole-dipole interaction.

[1]The authors wish to thank CREST, JST for funding.

Kenji Mishima
The University of Tokyo, JST-CREST

Date submitted: 26 Sep 2009 Electronic form version 1.4