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Code updating history of Jump Code Experiment

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Notes about the Matlab code used in the Jump Code Experiments.

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All the codes are available in SVN '[https://dawei-qip-matlab.googlecode.com/svn/trunk/Jump Code](https://dawei-qip-matlab.googlecode.com/svn/trunk/Jump%20Code)'

First consider the classical case. Without correction, one needs one bit with the two states $|+\rangle$ and $|-\rangle$.

```

1 % Number of timesteps
2 params.plength = 400;
3
4 % Length of each time step
5 params.timestep = 10e-6;
6
7 params.subsystem{1} = [1 2 3 9 10 11];
8 params.subsystem{2} = [4 5 6 7 8 12];
9 params.subsys_weight = [6 6];
10
11 % Input and goal states for state to state
12 params.rhoin = mkstate('+1ZZZZZZZIIIII',1);
13 params.rhogoal = mkstate('+1ZZZZZZZZZZZZ',1);
14
15 % Allow Zfreedom or not
16 params.Zfreedomflag = 1;

```

The fidelity keeps 0 all the time. Guess the reason is 'Zfreedom'. Set 'params.Zfreedomflag = 0;'. However, still 0.

Annie said maybe due to the length. Her SWAP gate requires 8ms, so I changed 'params.plength = 800;'. But for with or without Zfreedom, fidelity is still 0.

Check if some of my GRAPE settings are wrong. try to repeat Annie's SWAP gate calculation.

```

1 % Number of timesteps
2 params.plength = 800;
3
4 % Length of each time step
5 params.timestep = 10e-6;
6
7 params.subsystem{1} = [1 2 3 9 10 11];
8 params.subsystem{2} = [4 5 6 7 8 12];
9 params.subsys_weight = [6 6];
10
11 % Input and goal states for state to state
12 params.rhoin = mkstate('+1IIIIIIIZIIII+1IIIIIIIIIZIII+1IIIIIIIIIZII+1IIIIIIIIIZI
    +1IIIIIIIIIIIZ',1);
13 params.rhogoal = mkstate('+1IIIIIIIZIIII+1IIIIIIIIIZIII+1IIIIIIIIIZII+1
    IIIIIIIIIIZI+1IIIIIIIZIIIZ',1);
14
15 % Allow Zfreedom or not
16 params.Zfreedomflag = 0;

```

The outputfile is 'twqubit.SWAPC7H5'. And the fidelity is already over 98%. Then I changed 'params.Zfreedomflag = 1;', and the fidelity is over 95% after 30 iterations. Much slower than the no Zfreedom case. Maybe due to different initial guesses.
