1126-49-58   **Jiongmin Yong*** (`jiongmin.yong@ucf.edu`), Department of Mathematics, University of Central Florida, Orlando, FL 32816. *Forward-Backward Evolution Equations.*

For a standard optimal control problem of evolution equations, by applying Pontryagin's maximum principle, one obtains a necessary condition for the optimal control, involving a coupled system of two evolution equations, one is an initial value problem (a forward equation) and the other is a terminal value problem (a backward equation). We therefore call the system a forward-backward evolution equation (FBEE, for short). Once such an FBEE is solvable, we obtain a candidate of optimal state-control pair. Usually, one has to assume that the time duration to be small enough to guarantee the solvability of such an FBEE. In this talk, we will report some results from an on-going research of FBEEs. (Received December 23, 2016)