1126-35-31   **Chenyun Luo*** (`cyluo@mah.jhu.edu`), 3400 North Charles Street, Baltimore, MD 21218. *On the motion of a compressible gravity water wave.*

In this talk, I would like to go over some recent results on a compressible water wave. We generalize the apriori energy estimates for the compressible Euler equations established in Lindblad-Luo to when the fluid domain is unbounded. In addition, we establish weighted elliptic estimates that allow us to find initial data in some weighted Sobolev spaces with weight $w(x) = (1 + |x|^2)^\mu, \mu \geq 2$, and we show this propagates within short time ; in other words, we are able to prove a weighted energy estimates for compressible water waves. These results serve as good preparation for proving long time existence also for compressible water waves. (Received December 10, 2016)