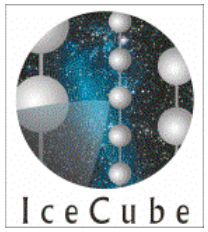


DOM-Cal Transit Time Calibration

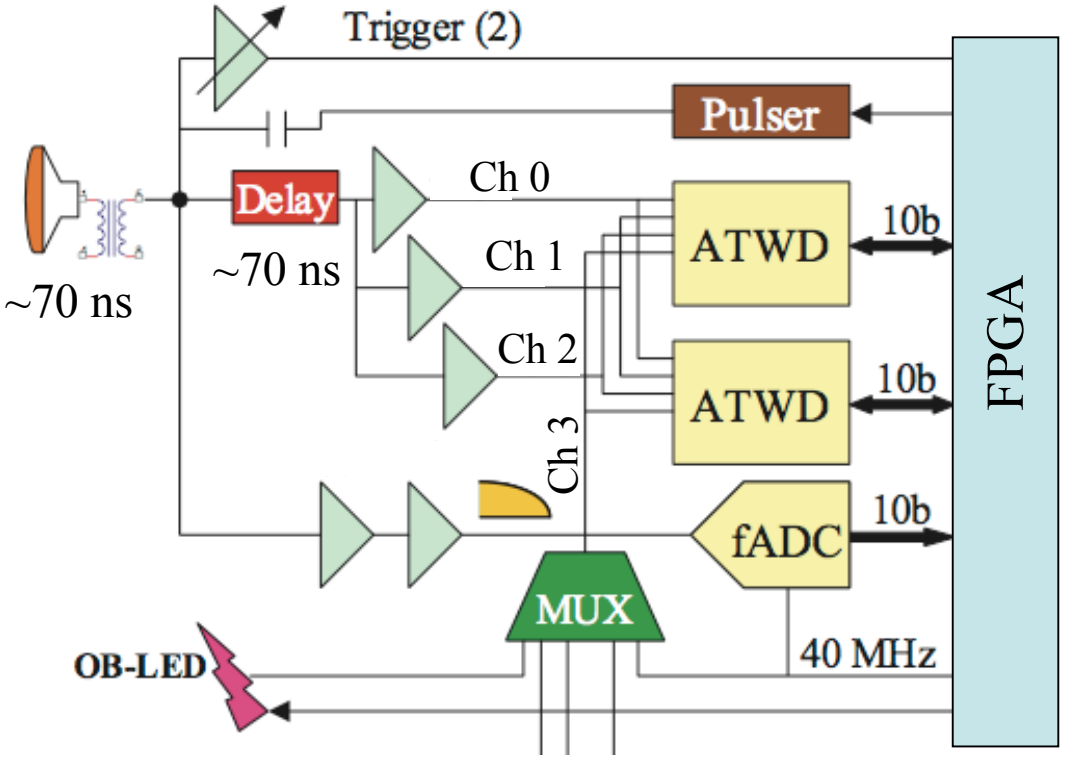
John Kelley

UW-Madison

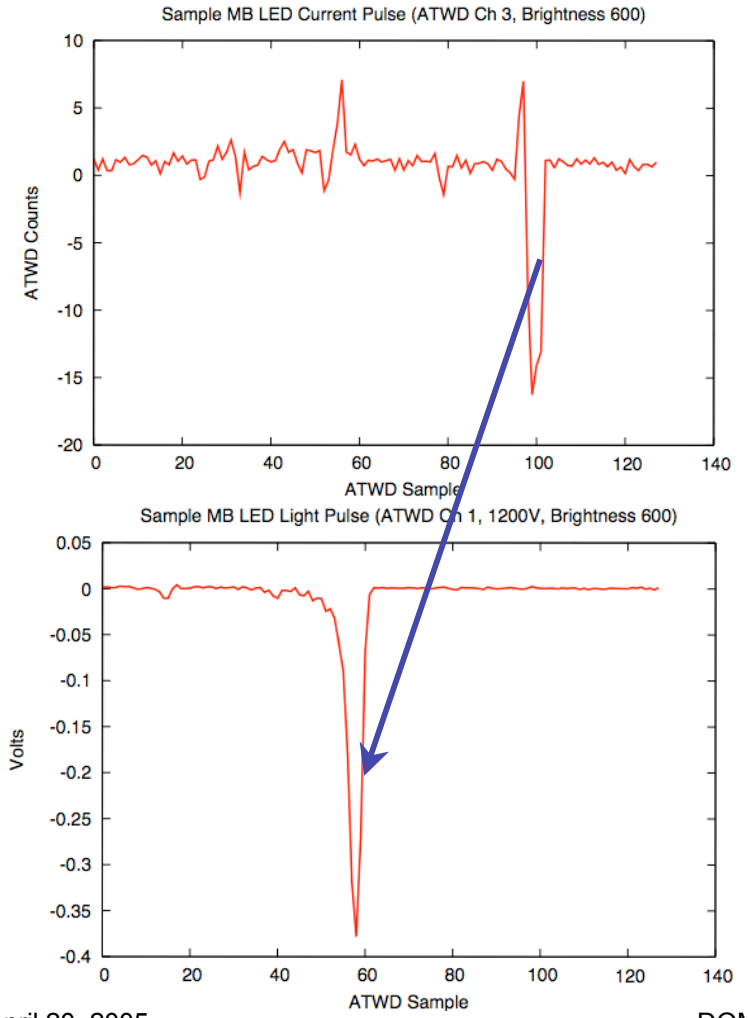
April 20, 2005

Motivation

- Signal we measure is actually delayed by:
  - PMT transit time
  - Delay board
- Varies with temperature, voltage, and from DOM to DOM
- Eternal struggle for truth

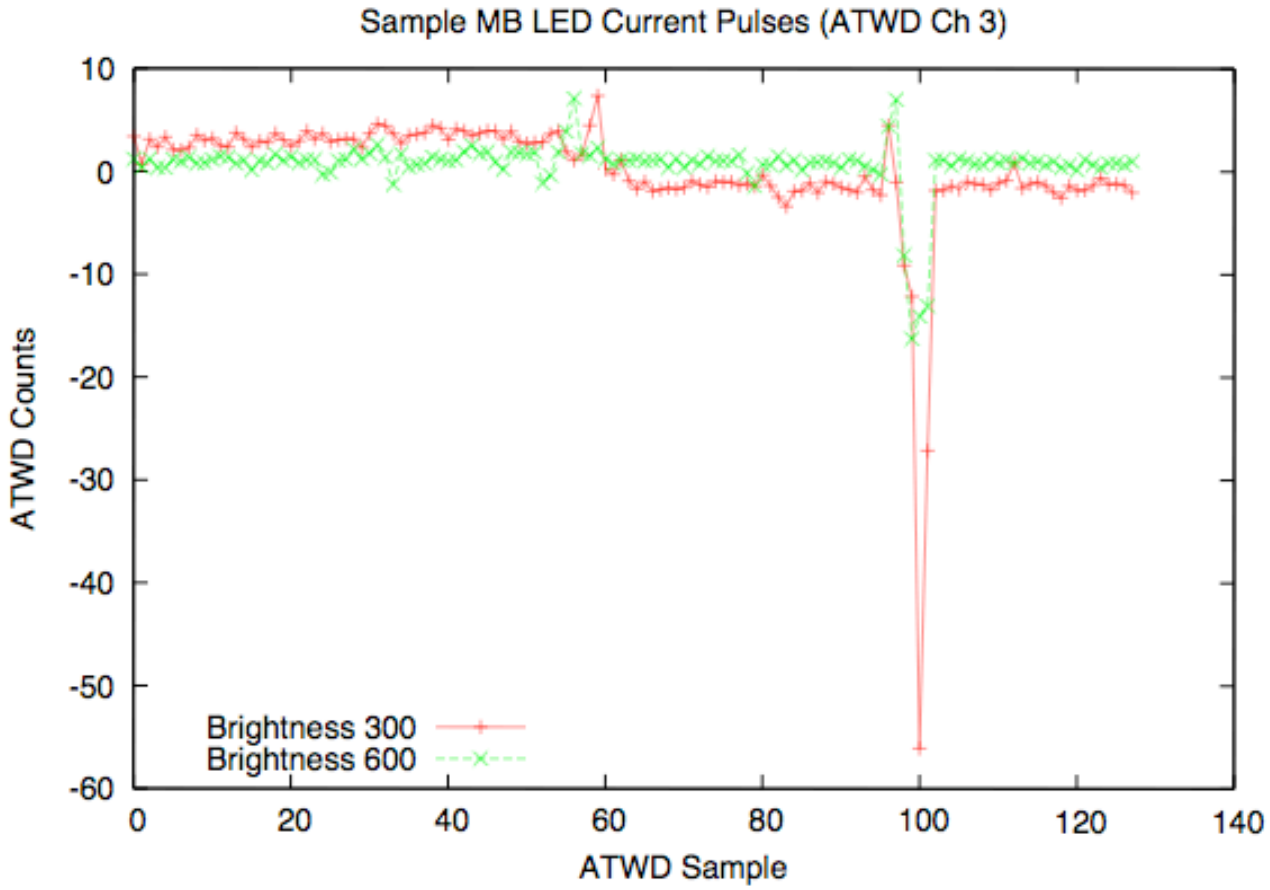


Concept of Measurement



- Flash mainboard LED
- LED-trigger the ATWD
- Record current pulse in channel 3, light pulse in channel 0 or 1
- Find 50% point of leading edges, convert difference to nanoseconds

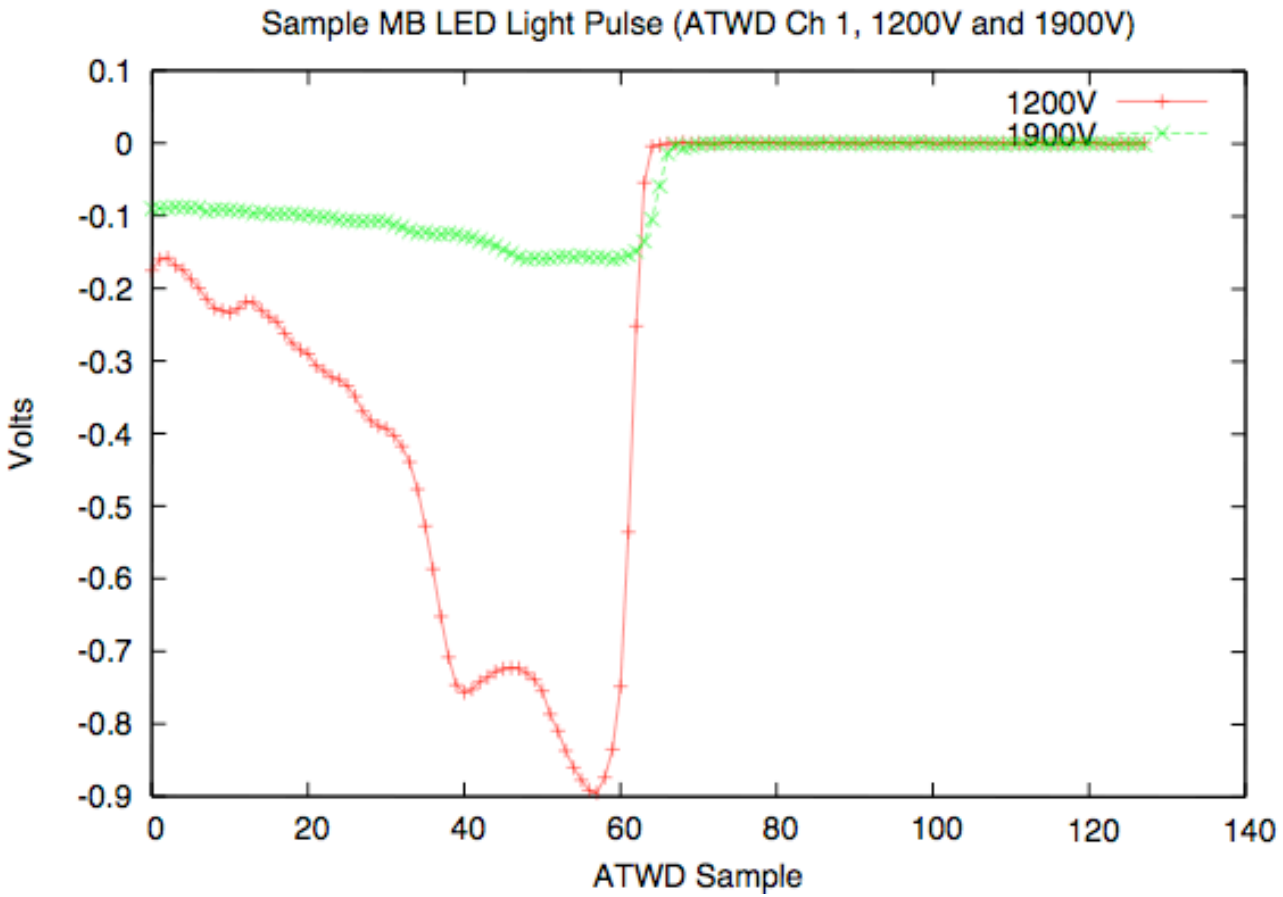
Fun “Features”



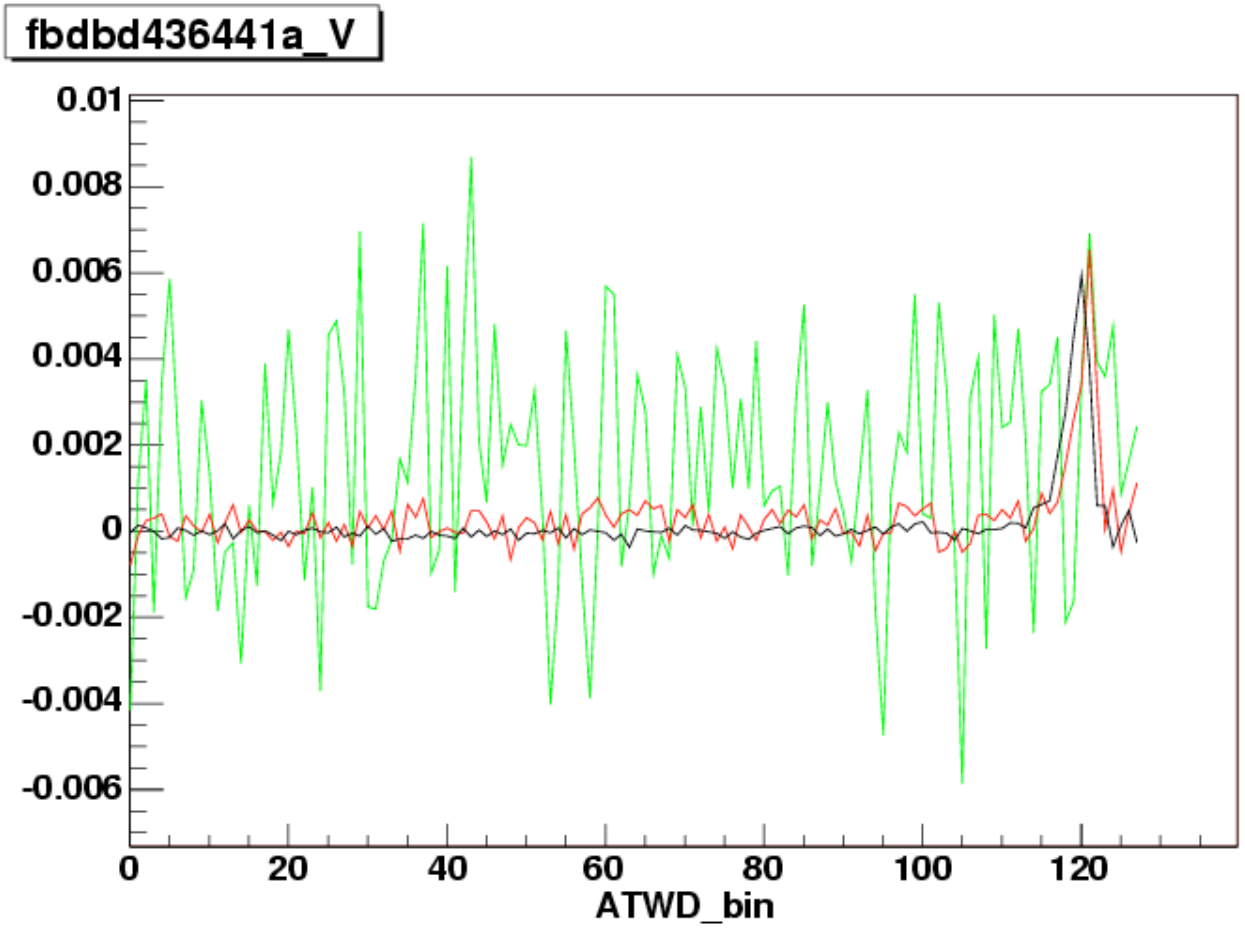
Higher brightness DAC setting means lower brightness (of course!)

More Fun

High-amplitude flashes at 1.2 kHz will saturate the PMT!

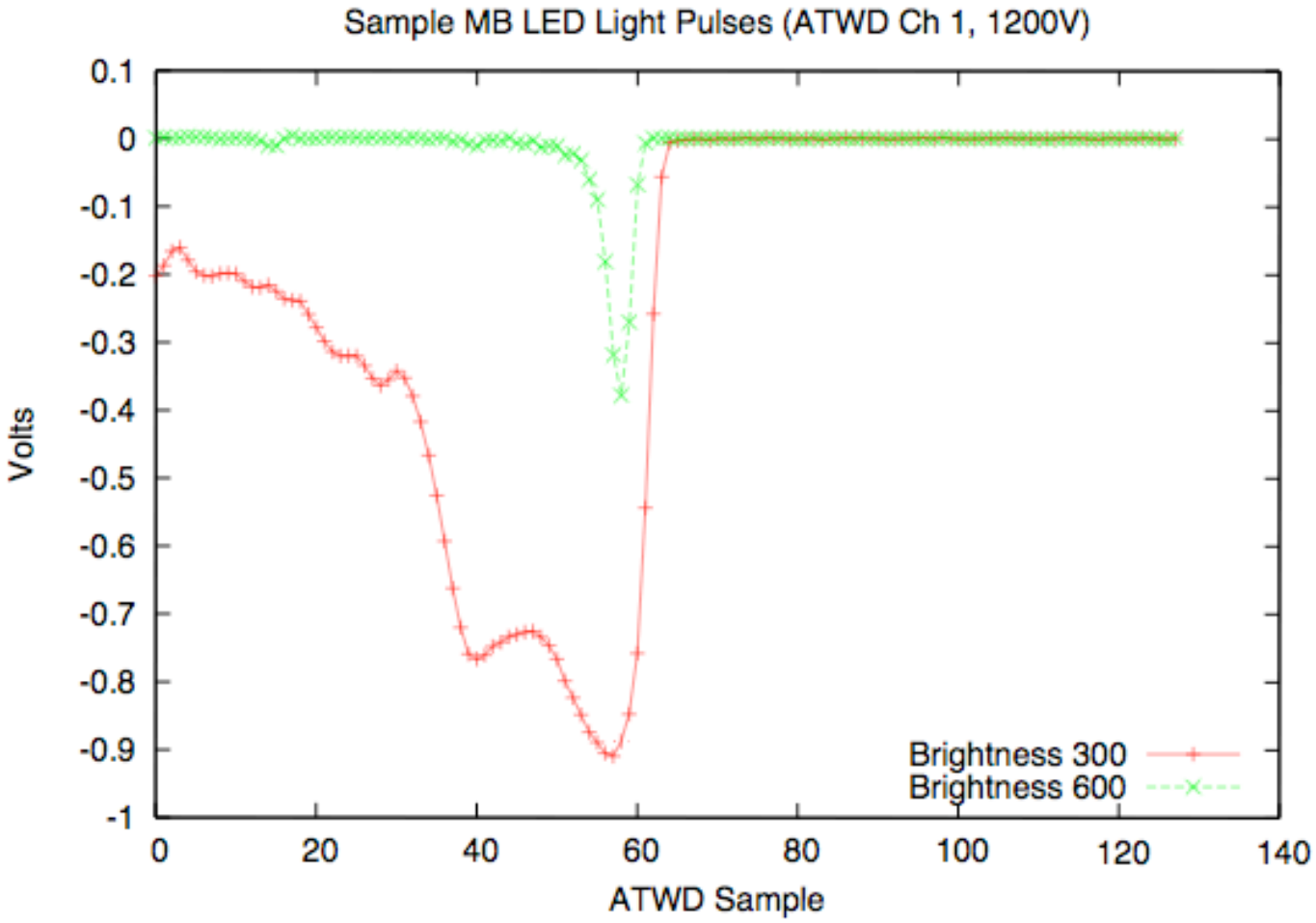


Even More Fun



There is a consistent delay in ATWD channel 0 (black)!

Unbearably Fun



Brightness affects transit time (scary!)

Ideas???

Preliminary Results