

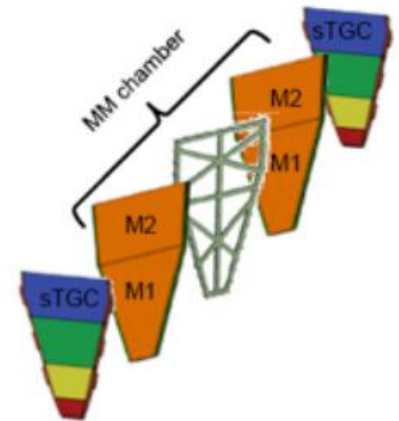
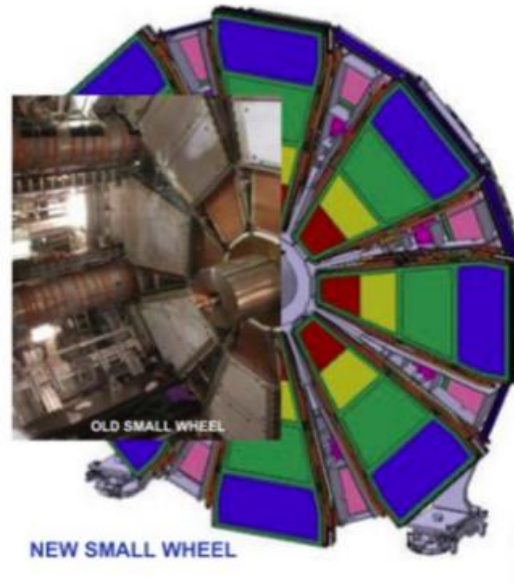
# sTGC Wedge Construction

Paris Franz

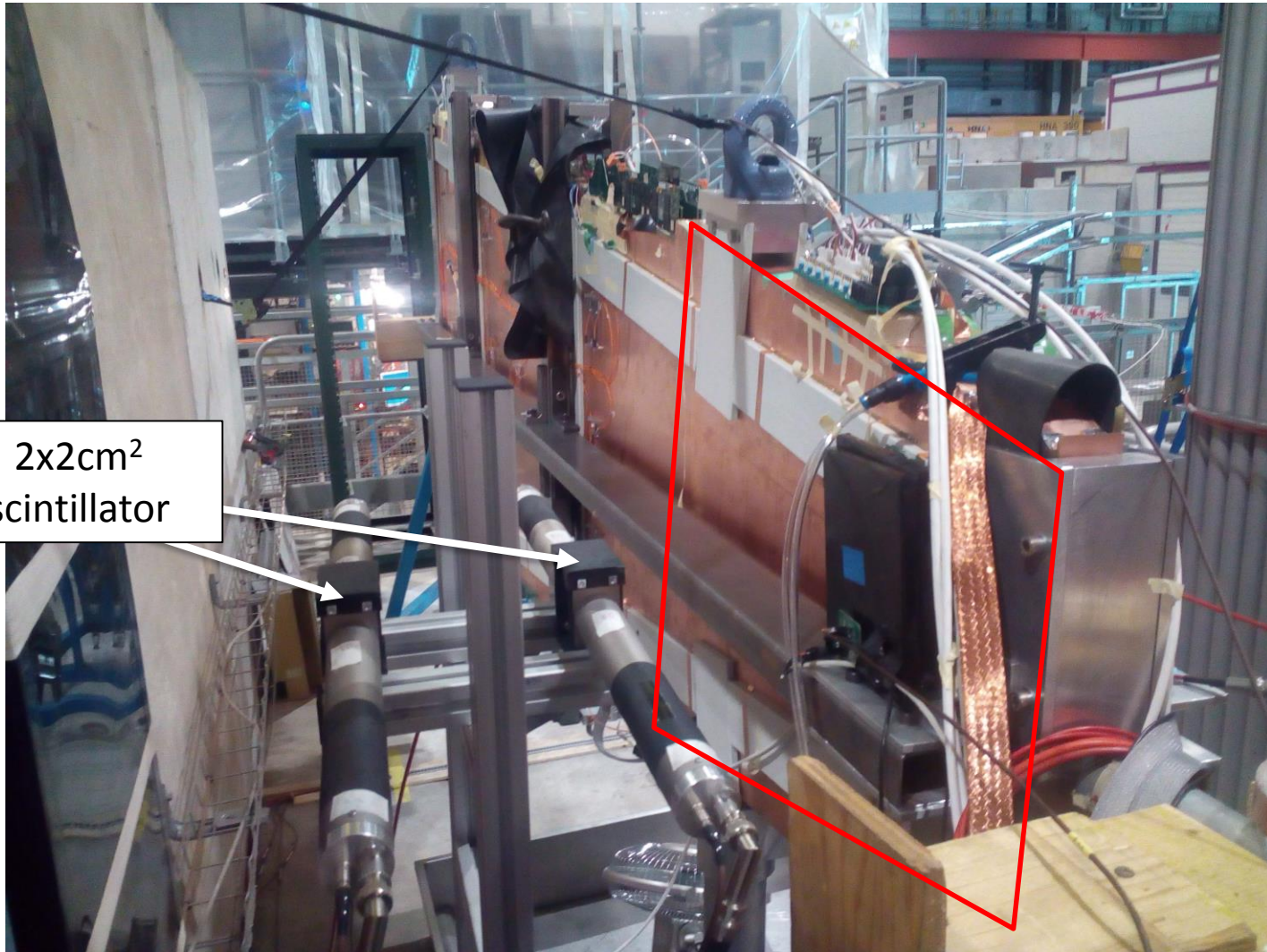
Supervisor: Yan Benhammou

# Overview

- Luminosity Upgrade
  - 10x increase
  - Extend sensitivity
  - New physics!
- ATLAS
  - High background noise with upgrade
- Muon Detector
- New Small Wheel
  - Greater precision tracking
  - Greater spacial resolution
  - Increased muon trigger rates
  - Improve rejection of fake muons
- Sectors and Wedges
- MM and sTGC
  - sTGC is a gas detector, trigger
  - MM tracker
- Wedge Mod 0 completed
- Beam Test of Mod 0 , QS1
  - Data Analysis



# Beam Test



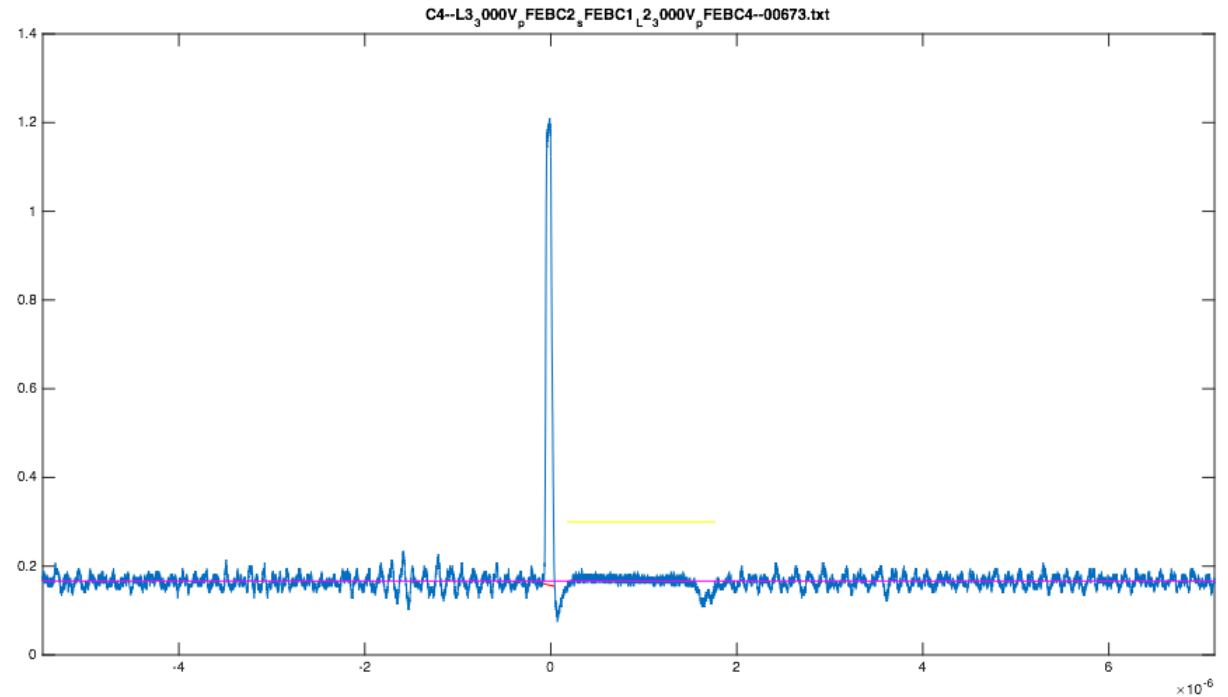
2x2cm<sup>2</sup>  
scintillator

# Beam Test

- Purpose of Beam Test
  - Does it work?
  - Pi Network for pFEB at what voltage?
  - Strip multiplicity at 3mV/fc
  - Best Parameters
  - Identify Problems
  - What Next

# Analysis

- Efficiency
- Dead Time

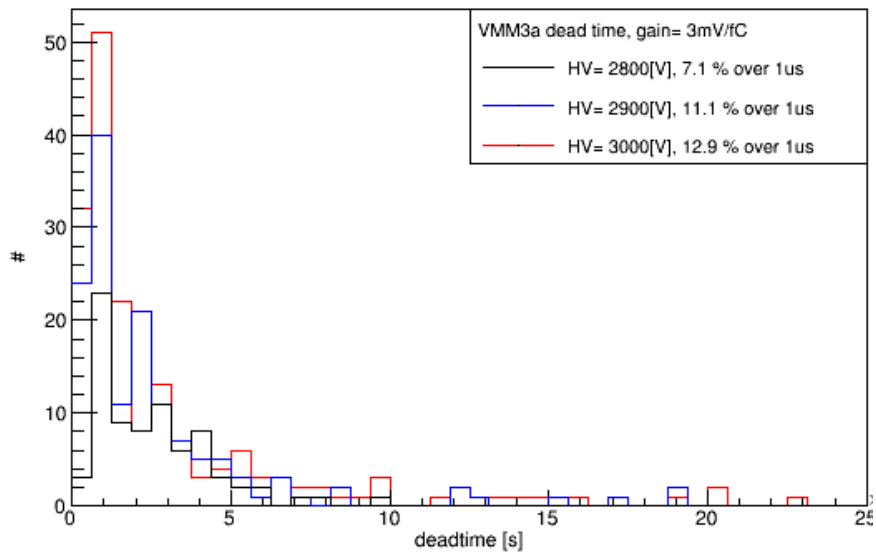


# Analysis

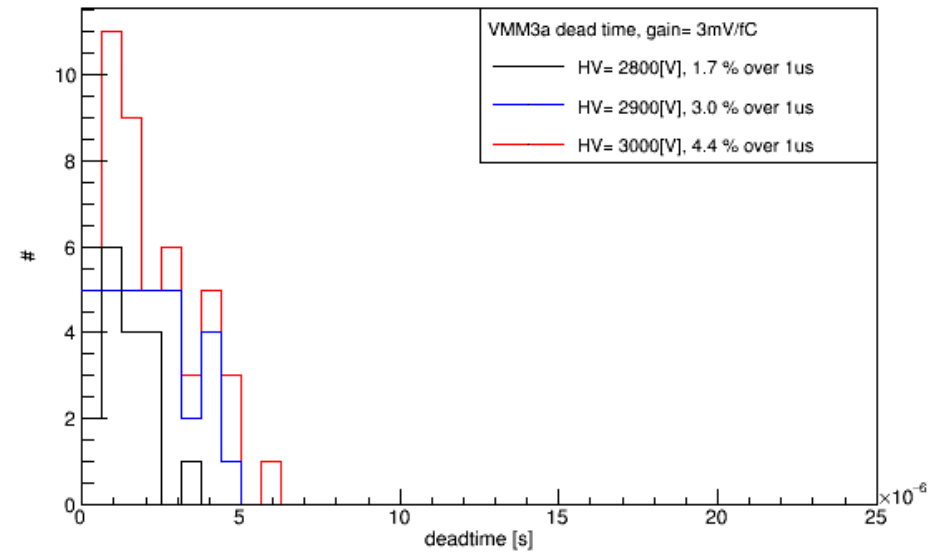
VMM3a without pi-network, 3mV/fC, 25 ns, 2800V

VMM3a with pi-network, 3mV/fC, 25 ns, 3000V

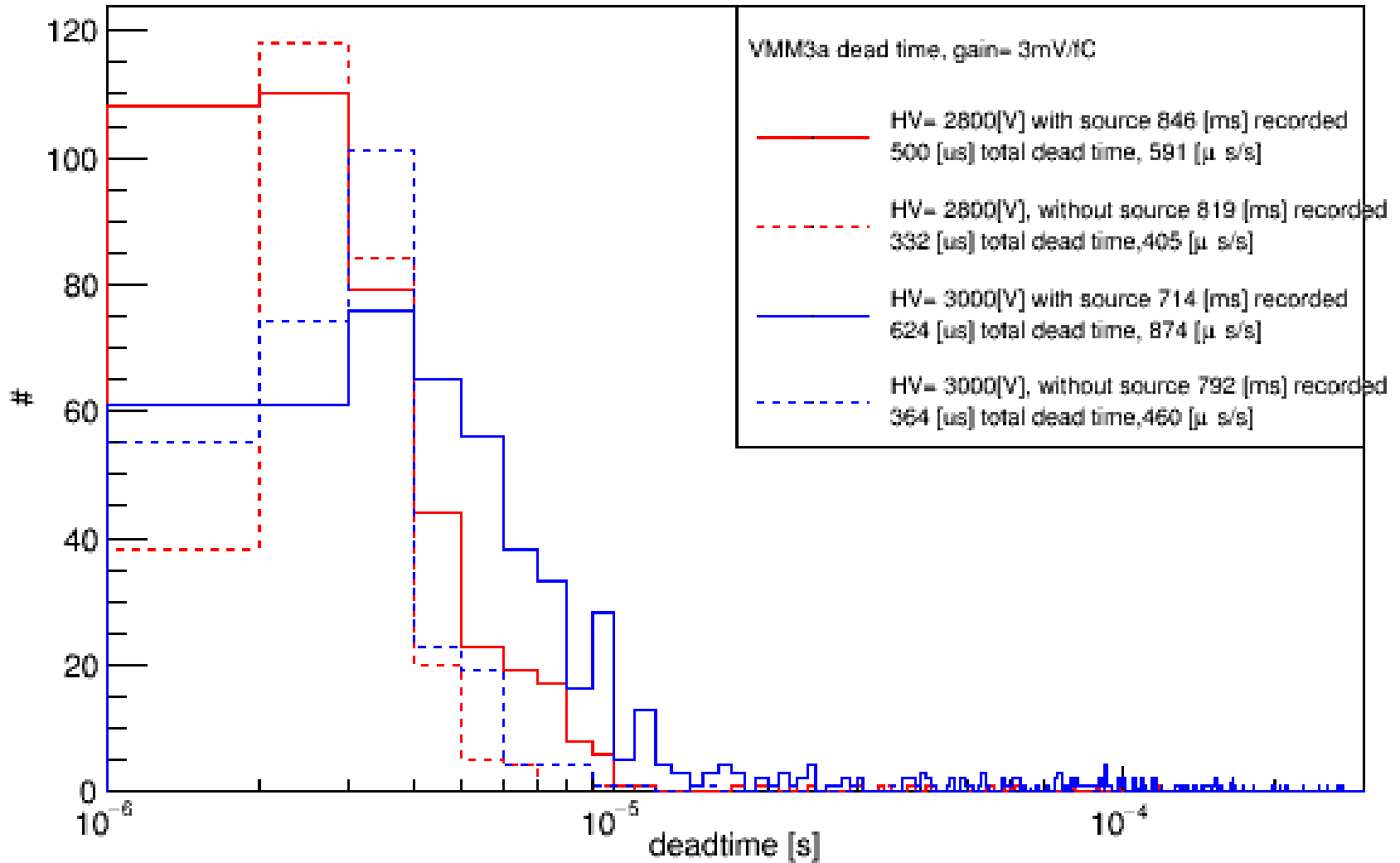
deadtime without pi network



deadtime with pi network



# deadtime per mili-second without $\pi$ network



# Preliminary Results

- Can obtain efficiency greater than 95% without Pi Network (2.8kV, 1 mV/fC)
- 2.8kV no Pi Network, 3kV with Pi Network, rate of events with long deadtime are comparable



