Progress Update

Trevor Towstego
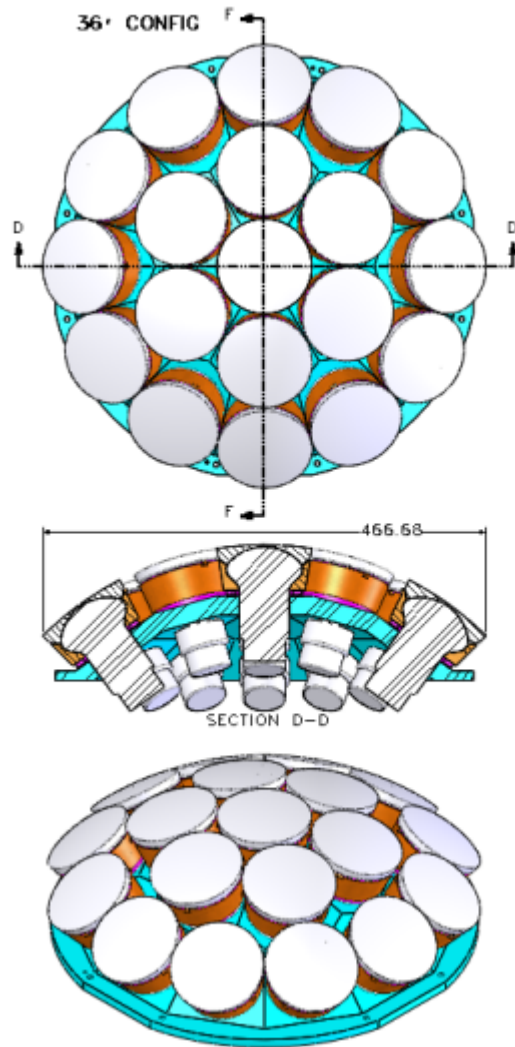UofT Neutrino/DM Meeting
April 6, 2017

Travel Plans

- SK Training + Shift April 27 – May 9
  - flights booked: April 26 – May 9
  - accomodation booked
- T2K + SK Collaboration Meetings
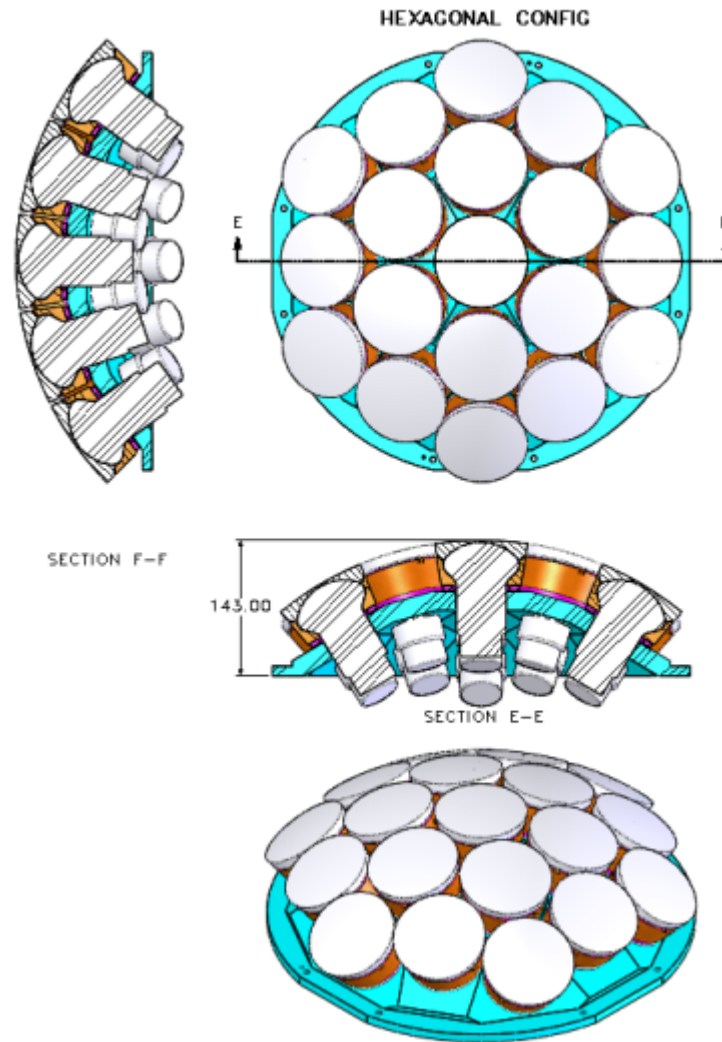 - flights booked: May 20 – June 4
  - accomodation for SK not yet booked

mPMT Simulations

- Tom updated WCSim

    – says he fixed some bugs (not sure what exactly)

- Re-ran simulations of 3-ring and hexagonal mPMTs

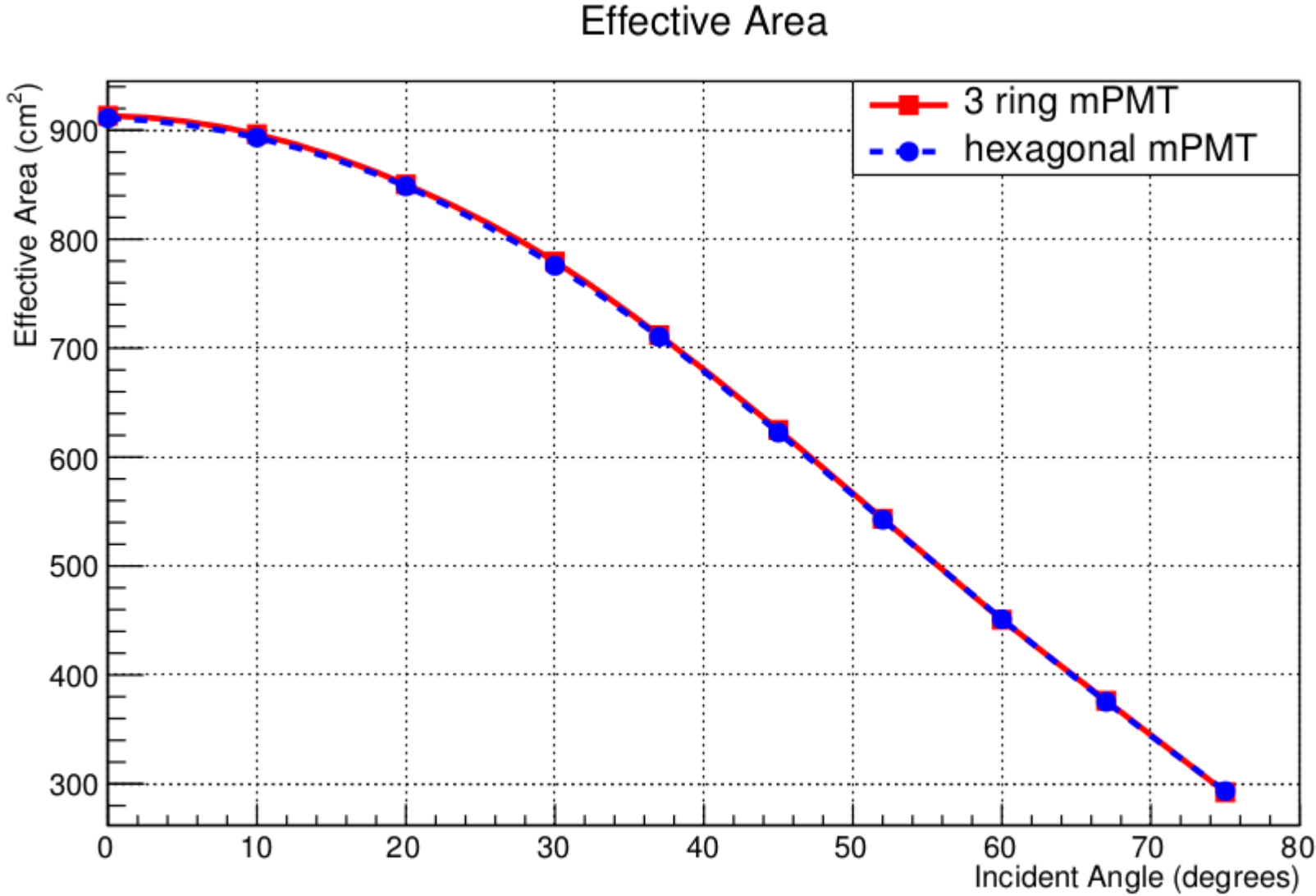- Results look the same as last time

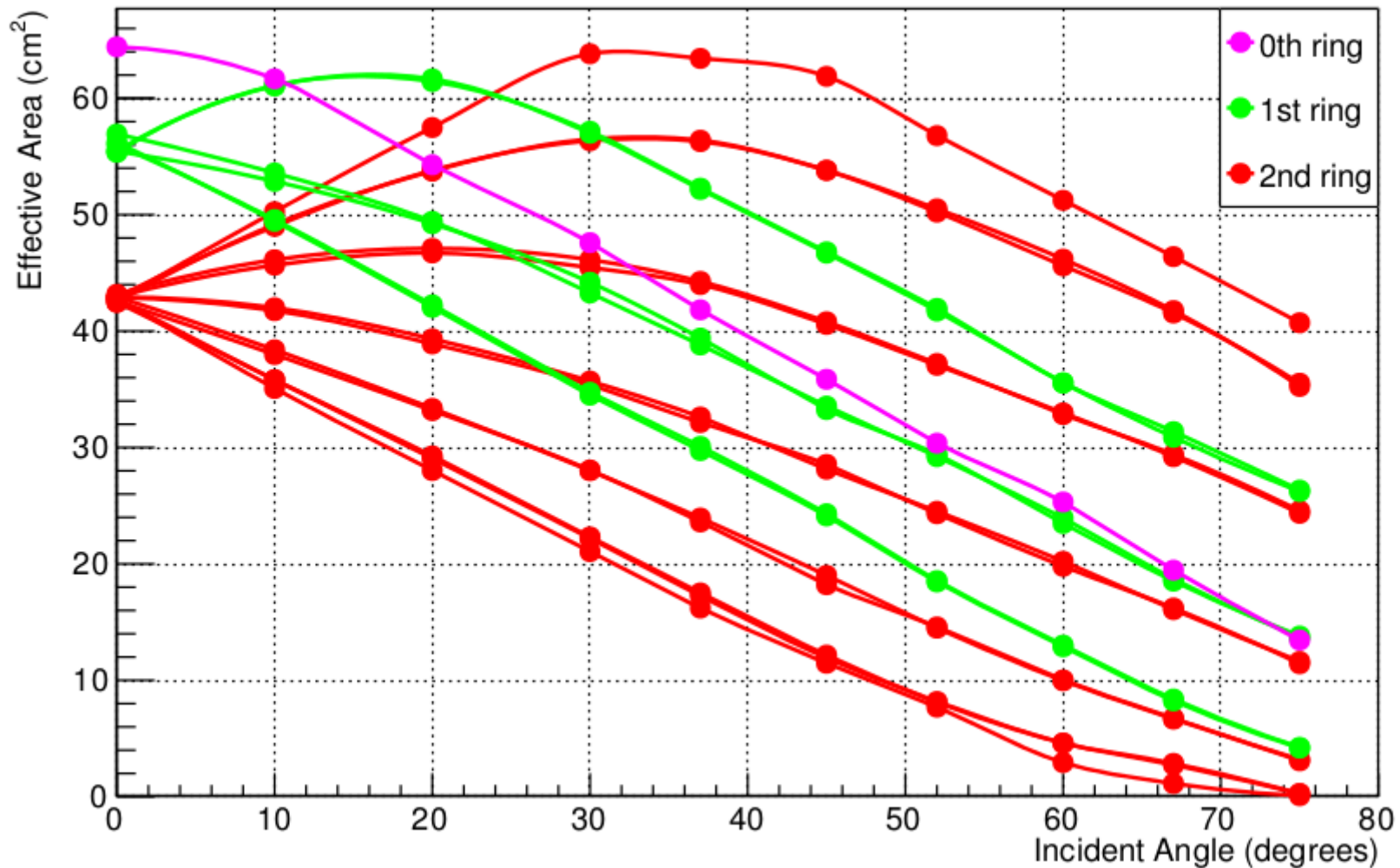# 3-ring configuration   hexagonal configuration

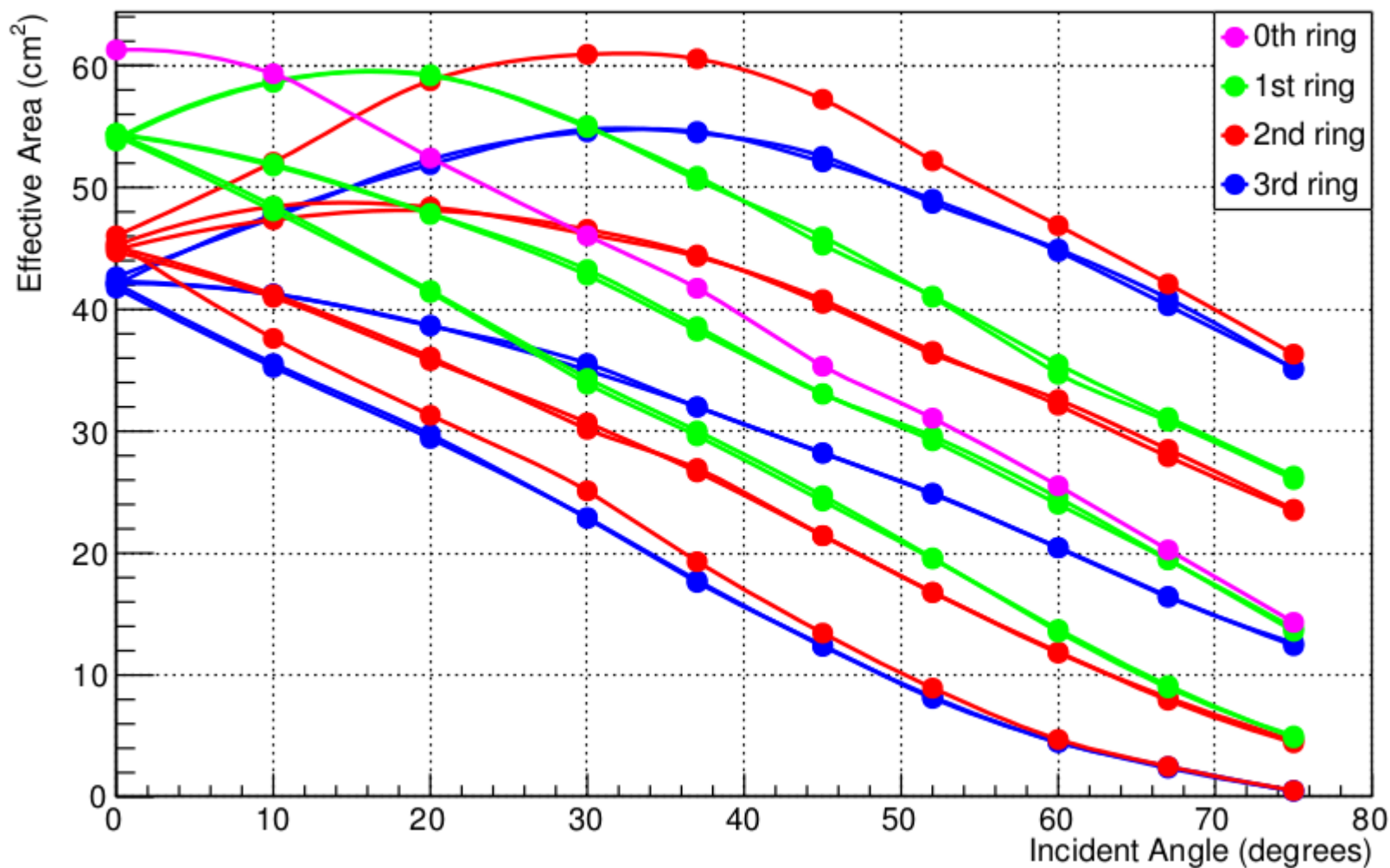# Direct Comparison (with reflectors)

Effective Area

3-ring mPMT: Individual PMTs

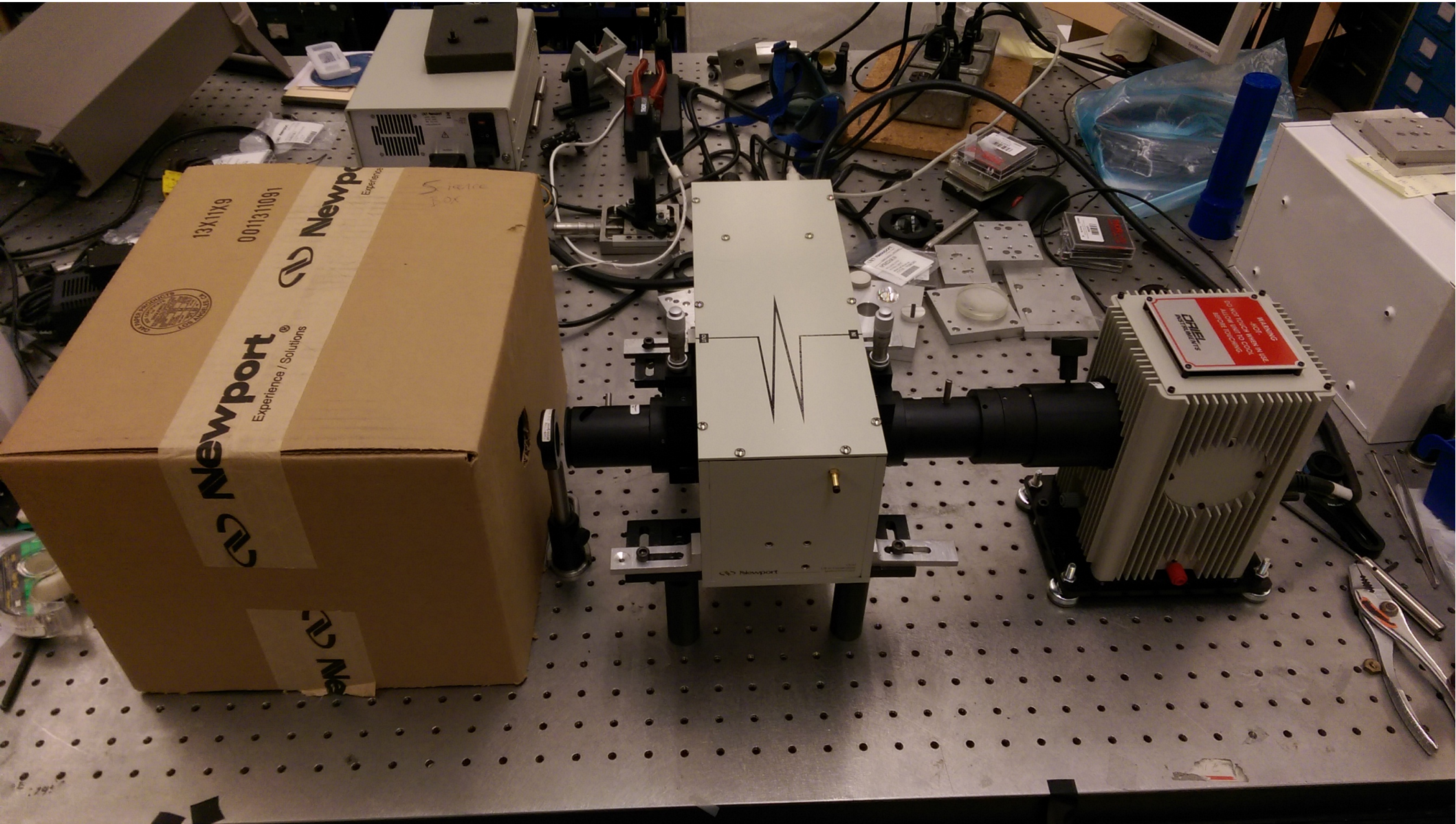nuPRISM mPMT1: Effective Area (with reflectors)
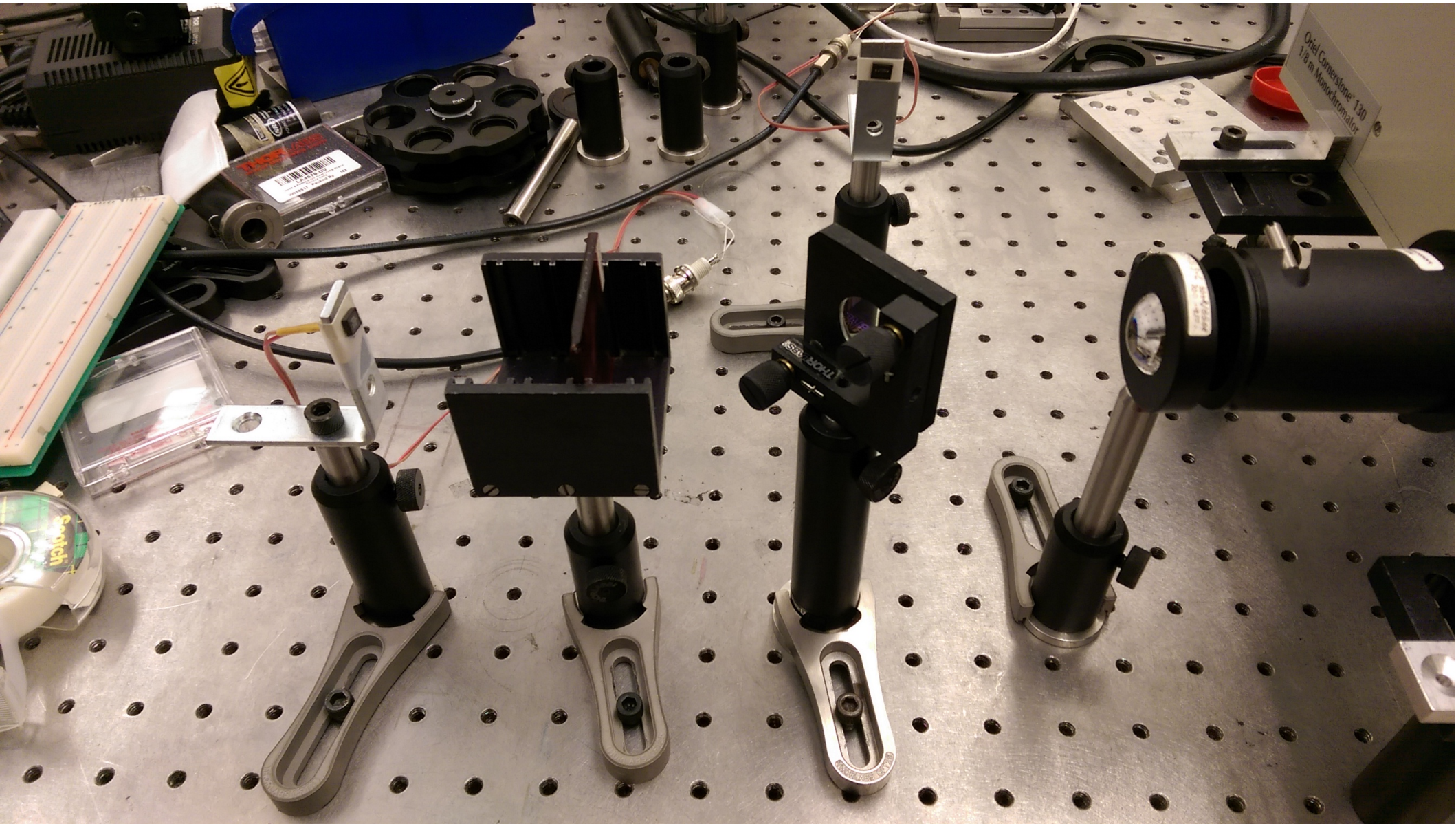
Hexagonal mPMT: Individual PMTs

nuPRISM mPMT2: Effective Area (with reflectors)

Optical Setup

Optical Setup

Found

- monochromator
- lamp + power supply
- picoammeter
- plano-convex lens
  - UV-transparent?
- optical stands
- L-bracket mounts for photodiodes

Missing

- 2 photodiodes
- beam splitter
- CCD camera
- sample holder
- blackbox
- PC with LabVIEW

To-Do

- Work on re-assembling optical setup

  - might have to order some missing parts

- Would still like to improve mPMT simulations

  - Currently, source only rotates along 1 axis

- nue CC1pi selection – adapt to T2K using T2K MC

- PhD Qualifying Exam

  - develop outline for report/presentation *soon*

  - arrange date of exam

- Eventually get to working on machine learning algorithm...