# DARK CURRENT MEASUREMENTS CONCERNING GLUE

Malte Stender

UNIVERSITÄT HAMBURG FORSCHERGRUPPE JUNO

18.09.2017



Gefördert durch DFG Deutsche Forschungsgemeinschaft

# Outline

#### 1 Setup and circuit

- 2 Known issues and measurement method
- 3 Measurements concerning glue and Tyvec
- 4 Current solution with staples



# Setup and circuit



- ADC: Analogue to Digital Converter: Caen Mod. N967
- AMP: Amplifier: Ortec Timing Filter AMP
- PMT: Hamamatsu 2-inch, R1828-01



# Known issues and measurement method

#### Issues

- Peaks are not identified yet.
- The voltage of a single photoelectron is not known exactly.
- Pedestal is also not identified.
- Measurement environment is not stable.
- Results in shifting peaks and in different numbers of peaks.

#### Measurement method

- 5 minutes measurement time for stable conditions
- 5 min dark current before 5 min measurement of an object 5 min dark current afterwards
- Merge histograms.
- It is necessary to open the box between the measurements  $\Rightarrow$  5 minutes cool down breaks between measurements

### Measurements with glue I



### Measurements with glue II



### Measurements with glue III



### Measurements with glue and Tyvec I



#### Measurements with glue and Tyvec II



### Measurements with removed Tyvec I



#### Measurements with removed Tyvec II



### Measurements with glue on Tyvec



12 / 15

# Measurements with glue on Tyvec II



#### Current solution with staples



# Summary

#### Summary

- Double sided tape, Lyreco or UHU on carton reduce the rate.
- This effect can also be seen, if Tyvec is applied to the glue.
- All glues raise the rate, when Tyvec is removed. (Lyreco seems to make strange things.)
- Weicon on Tyvec increases also the rate. (Looks similar to the Lyreco measurement with removed Tyvec.)
- Staples seem to be a good solution.

#### Outlook

- Understanding the known issues and identify peaks etc.
- Looking into absorption by the different glues.
- Further result interpretation