

# Status of the Drift Chambers

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January 16, 2012

OLYMPUS January Collaboration Meeting

# Drift chambers post- clean room

## Last summer:

Electronics and cabling installed

Crossed wires from wire-stringing in January 2011 all fixed

## Remaining wire problems primarily:

- Bits of sense wire broken off floating amongst other wires
- Wires going slack after having voltage put on them

Began wire conditioning at high voltages

Problem with many HV cards drawing too much current

**Most problems with cards tripping are  
due to sparking on the cards themselves**

# HV card trips

Hunt down other causes of card failure first

- Cells, external wiring, HV cables

Replace cards that can't be saved with spares

## **Beginning of August test beam:**

- 29/33 cards holding voltage in left sector
- 25/33 cards holding voltage in right sector

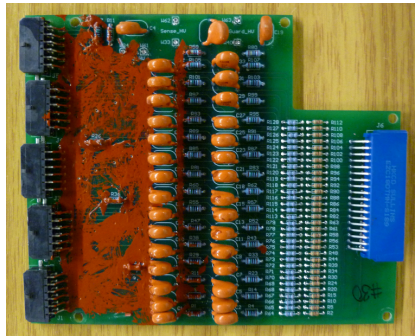
## **After just a few days of test beam:**

- Almost 10 more cards can no longer consistently hold operational voltage

**Out of operational spare cards in September**

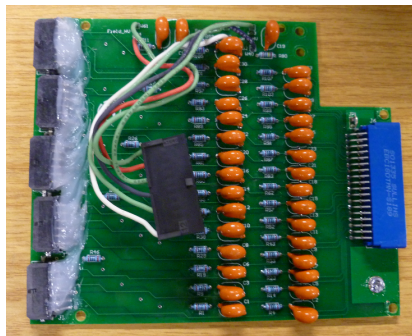
# Old HV cards

- Sparking mostly between traces
- Cards tested and slathered in Super Corona Dope at Bates
- Spark even more depending on humidity conditions
- Have to “fix” by watching/listening for corona discharge on bad cards and insulating problem areas



# Improved HV cards

- New board design
- Four-layer circuit board that avoids having traces with large voltage differential
- High-voltage connectors instead of soldering HV lines directly into boards (easier to replace)
- Populated at MIT in December



# Work done in January

## First week:

- Removed all old cards and installed new ones
- Fixed card hinges and grounded cards to the chambers

All new cards appear to work!

## Second week:

- Isolated problems keeping remaining HV cards down to individual cells (6 cells on the left, 8 on the right)
- Removed black plastic and repaired all wire problems that could be found

As of this weekend: No problem cells on left, just a few on the right

**All cards should be able to hold operational voltage with 99% of cells plugged in**