



# Current Status of the large GEM detector assembly

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# Different Technique tried

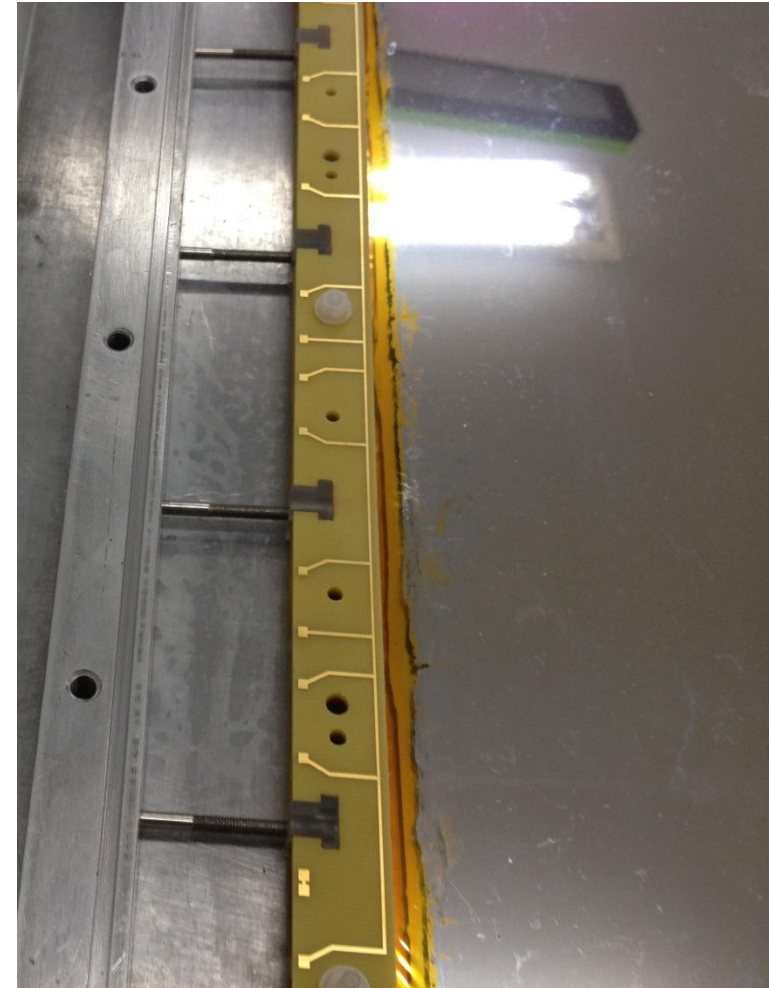
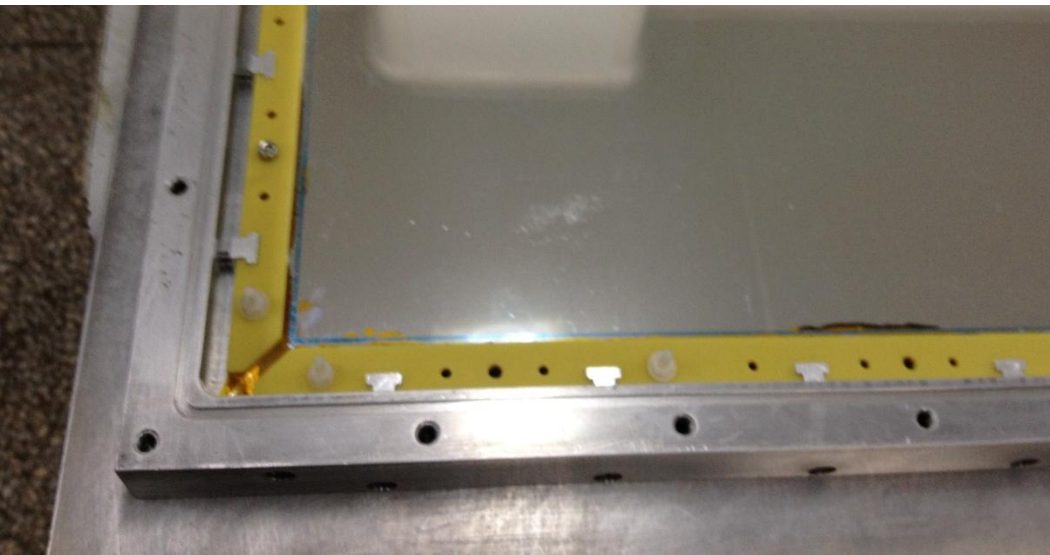
- What was the problem before?

Using the previous way to assembly the large GEM detector, the flatness of the GEM foil can not be guaranteed and sparking occurs to damage the large GEM foil.



# Different Technique tried

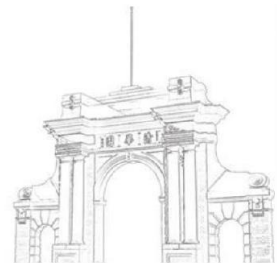
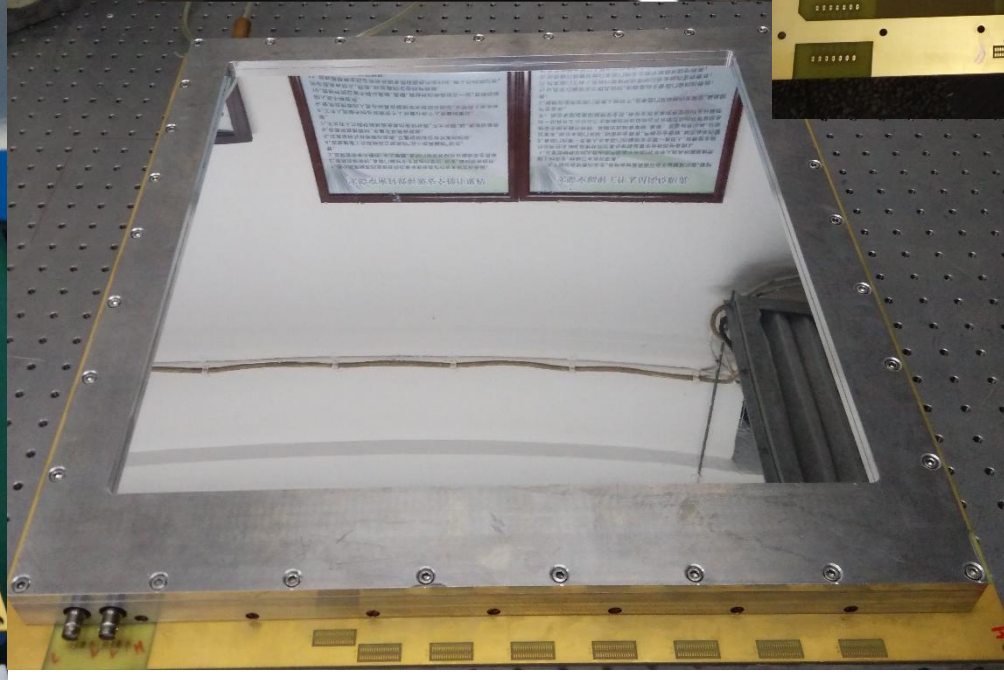
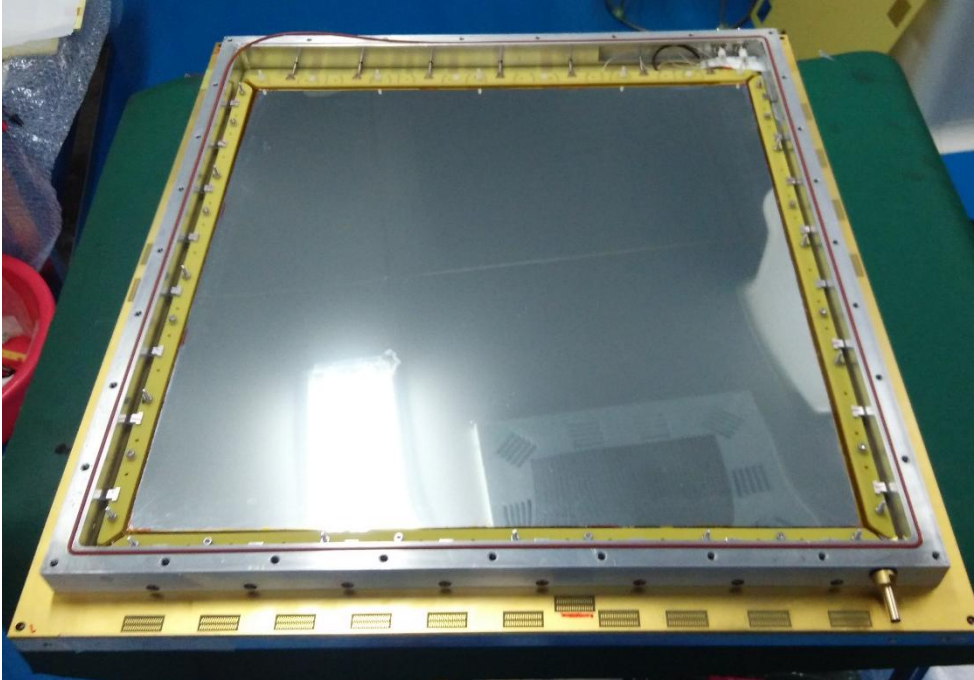
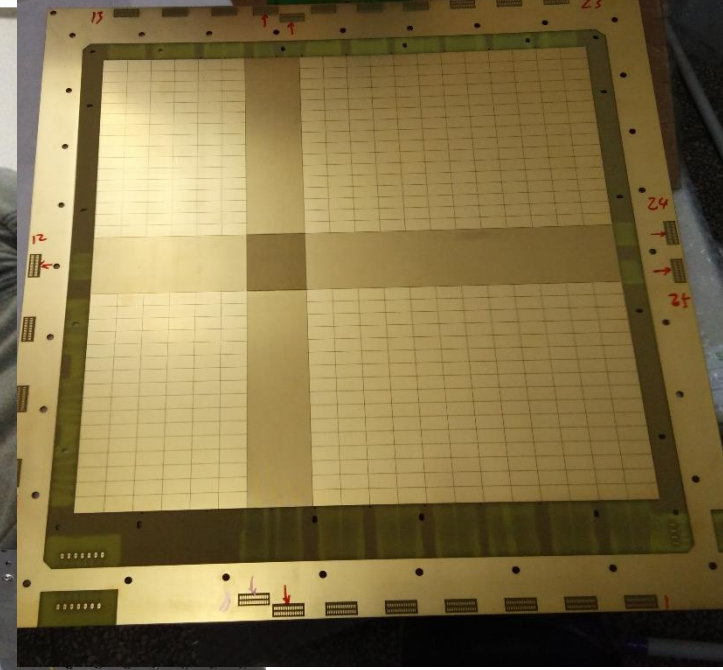
- Main modification is at the way of stretching the foil. Make a new foil stretching system. Try and test many times with thin mylar foils to get trained in the technique.





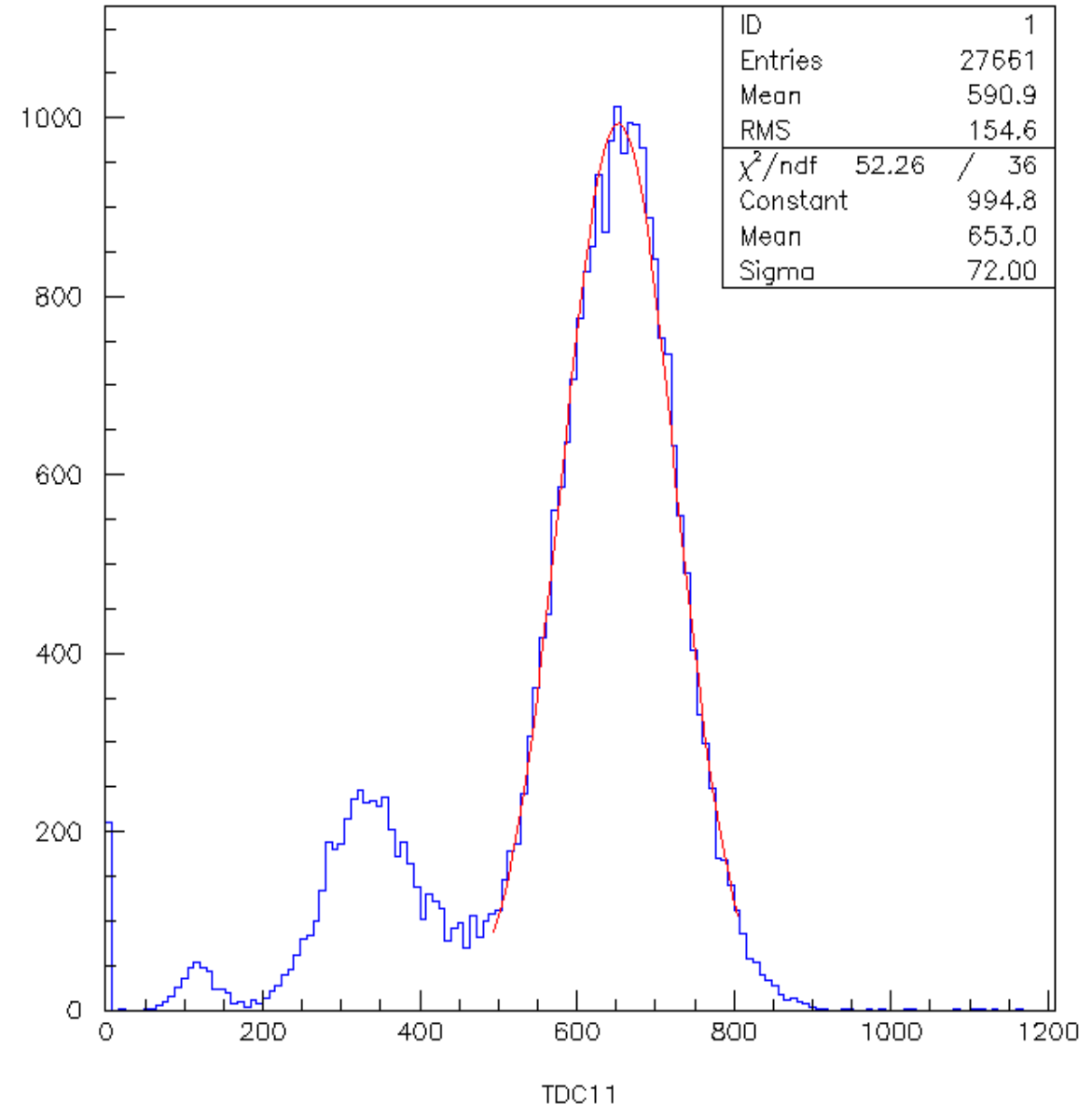
# Single-Foil detector has been mounted

- Currently 2 Layers, go three layers in next week



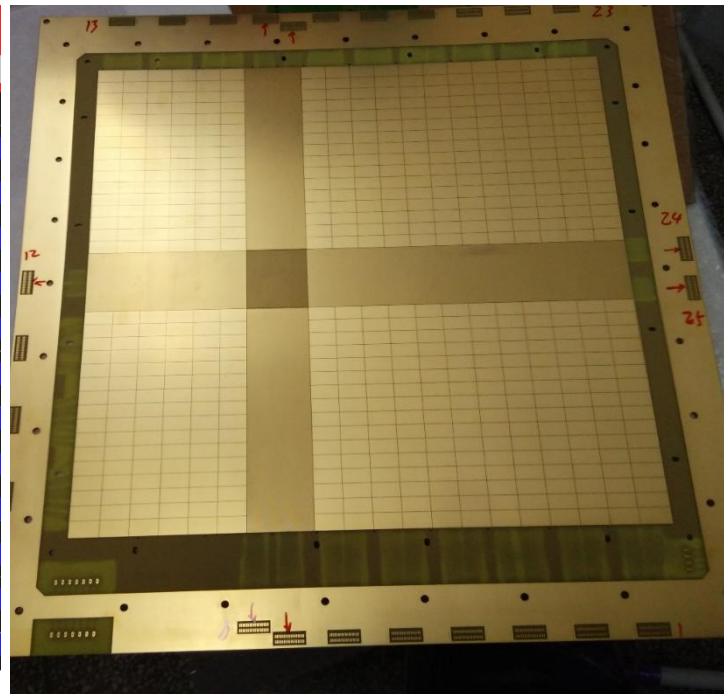
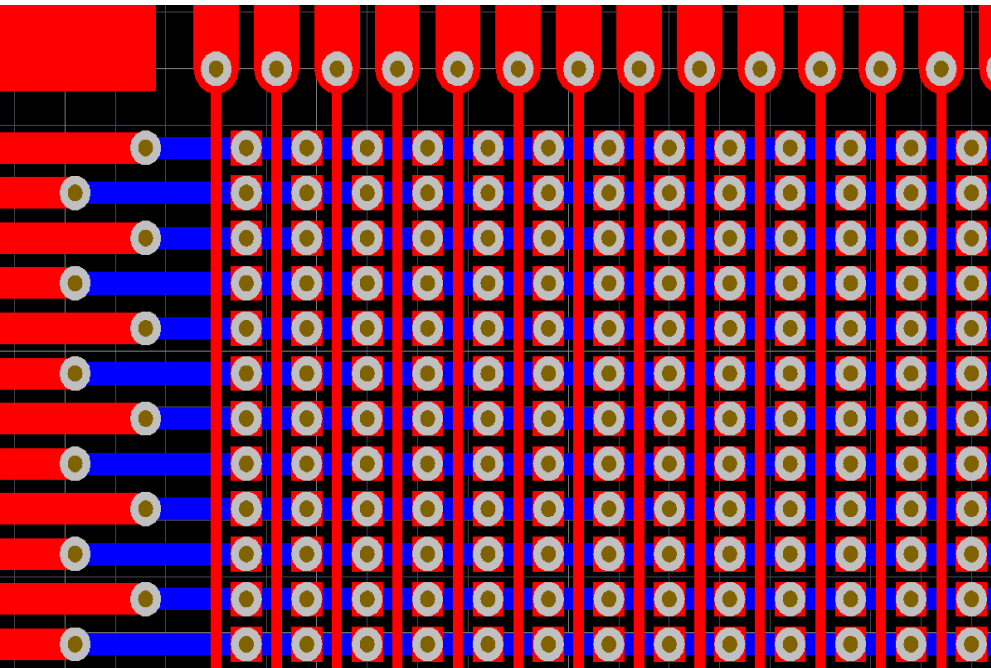
# Energy Resolution Test

- Gas: Ar80% + CO<sub>2</sub> 20%
- Working Voltage: -1650 V
- Resolution =  $72/635 * 2.36 = 26.7\%$
- Preliminary test: One readout for 32 strips or pads
- Stripe distance: 400 (X)/600(Y)  $\mu\text{m}$
- Pad Size: 22.3mm\*12.3mm



# Uniformity Test

- Large non-uniformity, **Strips** see larger noise, while noise on pads are smaller.
- Detailed test required



Strip #	Peak	Sigma	
3	653	72	
5	560	81	
<b><u>7</u></b>	<b><u>549</u></b>	<b><u>74</u></b>	
10	588	61	
<b>12</b>	<b>570</b>	<b>107</b>	
13	653	75	
<b>16</b>	<b>579</b>	<b>103</b>	
19	542	77	
22	620	75	
<b>25</b>	<b>554</b>	<b>105</b>	

# Summary

- A large are GEM detector (450mm\*450mm) is assembled with 2 layers of GEM foil;
- Performance is stable and tested;
- Typical Energy Resolution is achieved, while the non-uniformity is still presented.
- Detailed test is on going.

