CSC efficiency & spatial resolution with GIF++ testbeam data (pre-approval)

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GIF++ CSC working meeting
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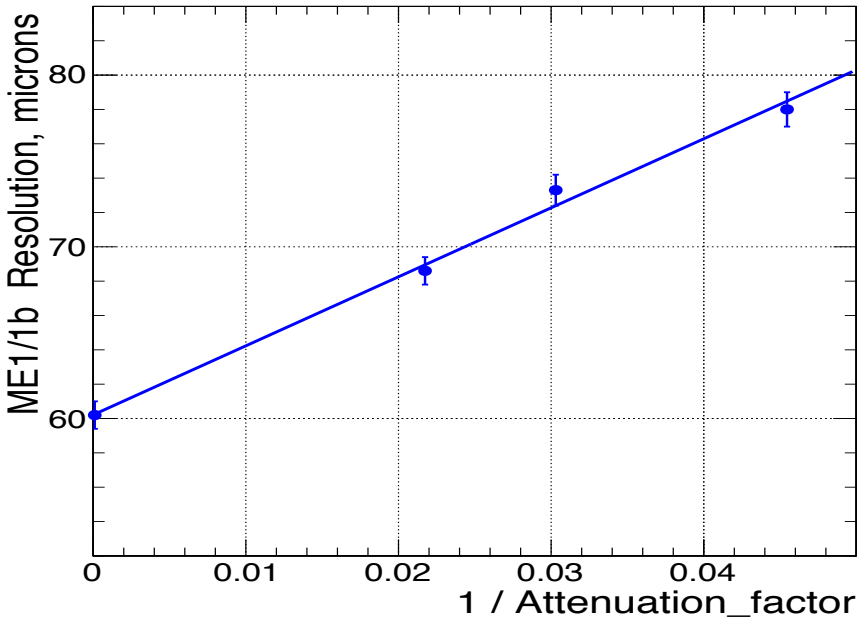
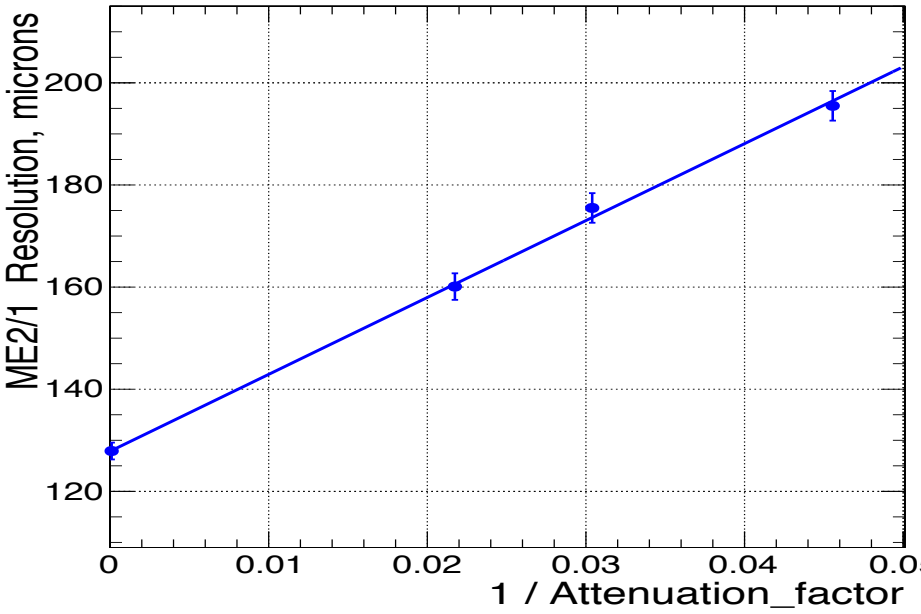
GIF++ ME11 & ME21 Resolution test40, HV0, Aug2016 data

Resolution vs Attenuation factor

ME11



ME21



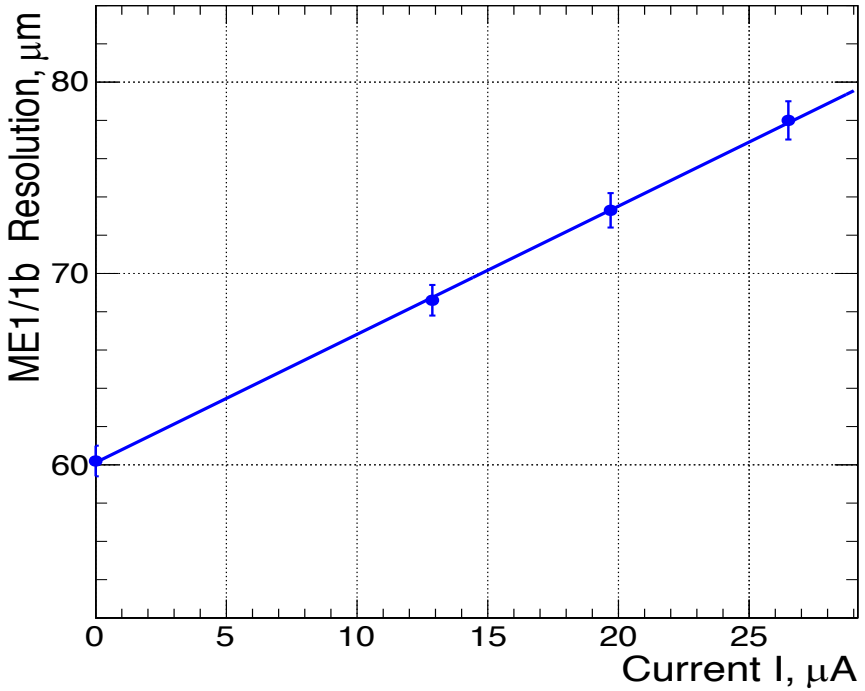
Spatial resolution calculation:

A single layer spatial resolution is defined as a residual between the measured strip coordinate and predicted track coordinate in the layer calculated from the track-segment fit.

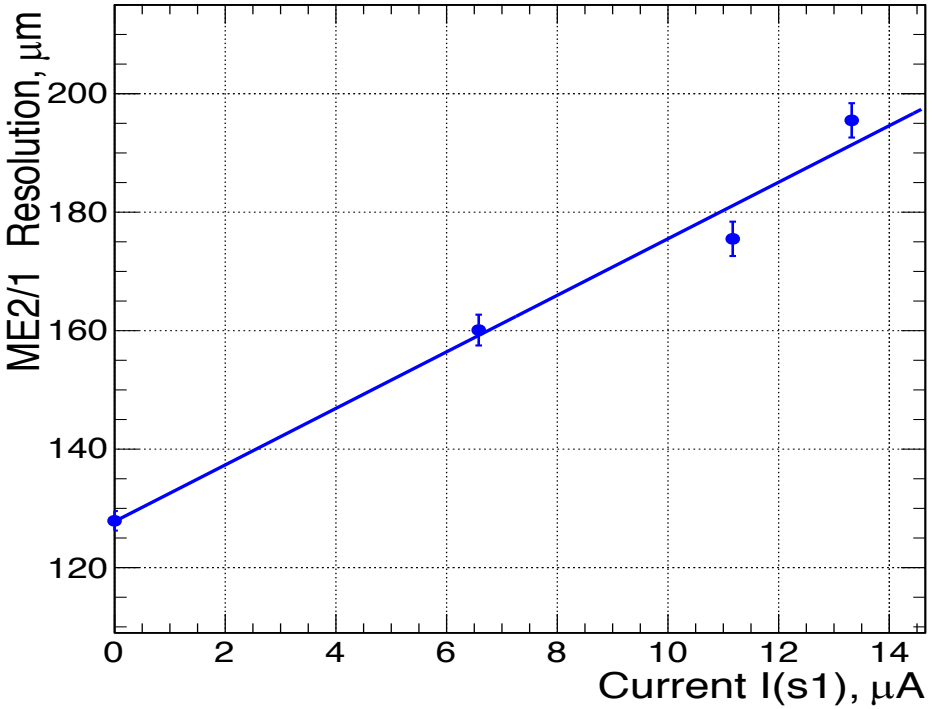
GIF++ ME11 & ME21 Resolution test40, HV0, Aug2016 data

Resolution vs Current

ME11



ME21



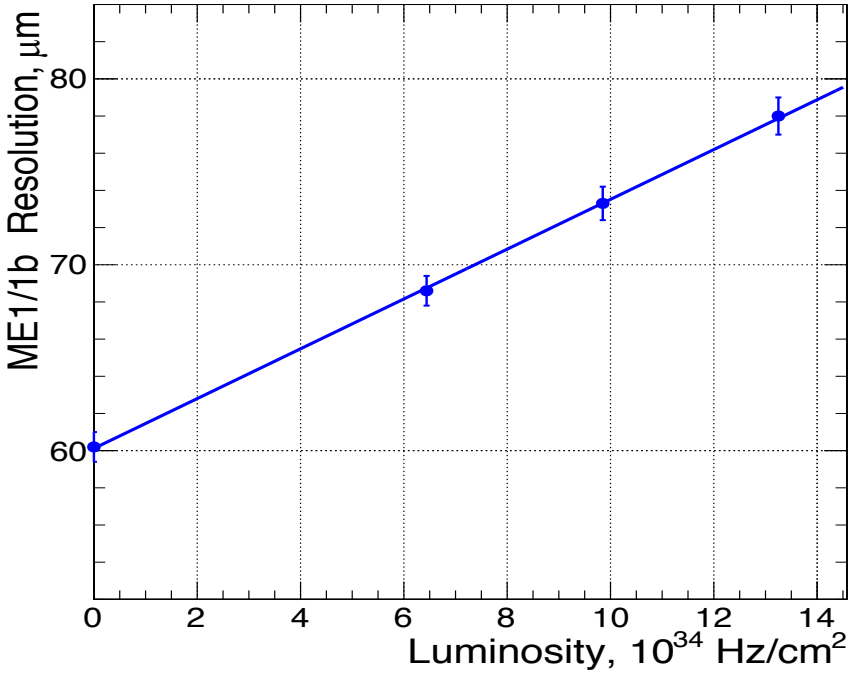
Spatial resolution calculation:

A single layer spatial resolution is defined as a residual between the measured strip coordinate and predicted track coordinate in the layer calculated from the track-segment fit.

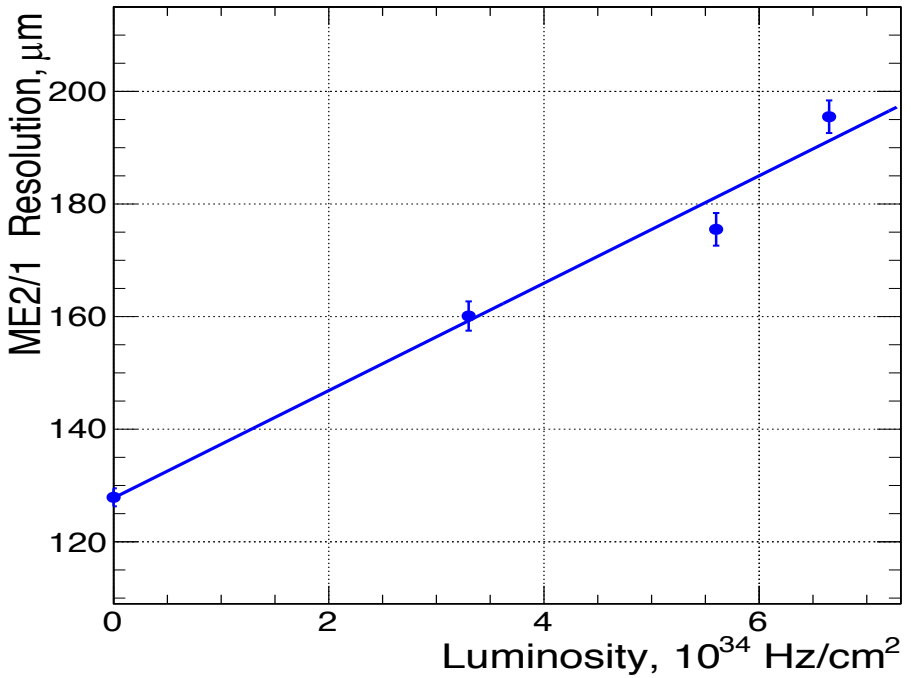
GIF++ ME11 & ME21 Resolution test40, HV0, Aug2016 data

Resolution vs Luminosity

ME11



ME21

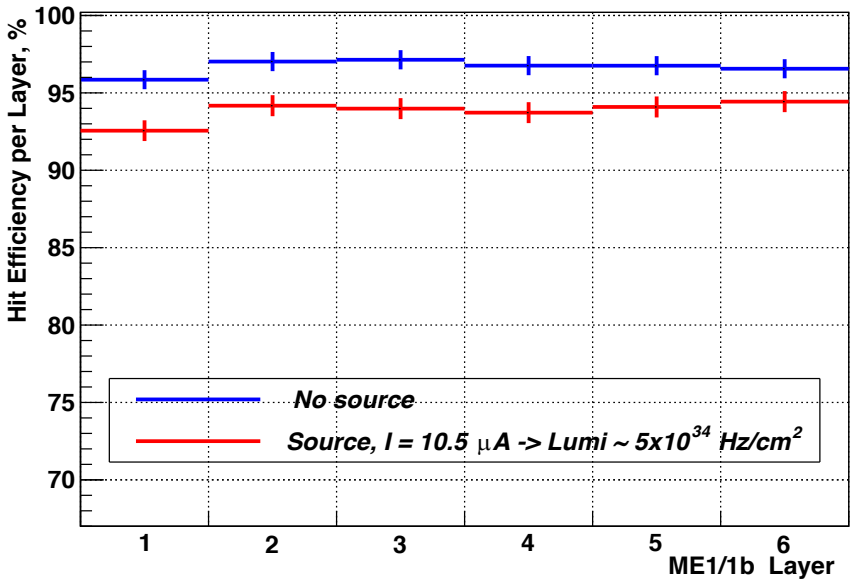


Spatial resolution calculation:

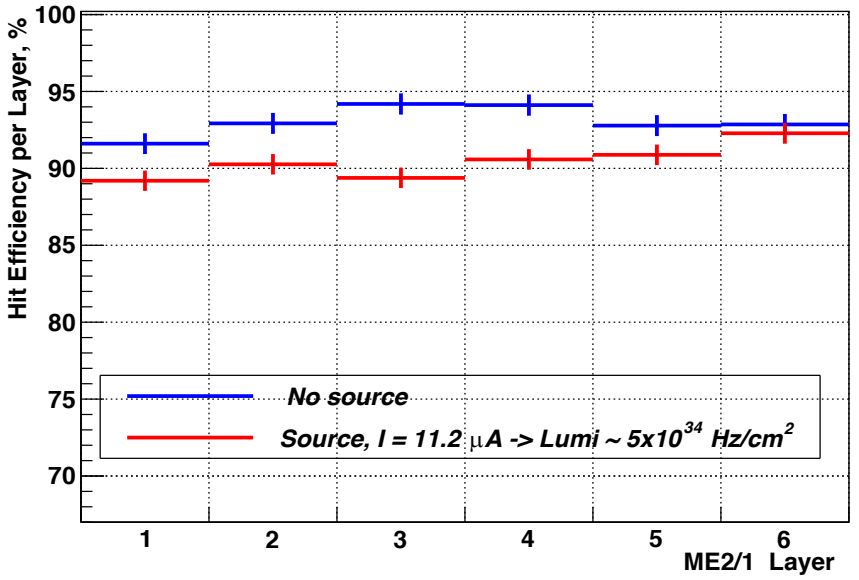
A single layer spatial resolution is defined as a residual between the measured strip coordinate and predicted track coordinate in the layer calculated from the track-segment fit.

ME11 & ME21 RecHit Efficiency per layer (Aug 2016), test40, HV0

ME11



ME21



Aver.efficiency per layer

96.7%	No source	93.1%
93.8%	Source	90.4%

CSC hit efficiency per Layer is calculated for events where track-segments were reconstructed and defined as ratio:

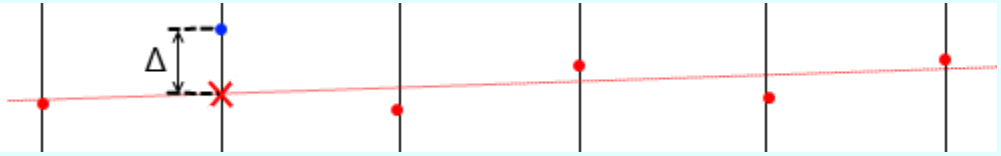
(Number of the spatial reconstructed hits in a Layer) /
(Number of track-segments).

Backup Slides

Spatial Resolution & Efficiency

Spatial resolution calculation:

- Only 6 & 5-point segments are considered;
- For each layer with hit a straight line fit is applied excluding the current layer and the residual (Δ) between the measured strip coordinate and the predicted track coordinate from fit is used for resolution calculation.



- hit used for fit
- hit excluded from fit
- predicted track coordinate

Efficiency per layer (from segments):

Numerator	1	1	1	0	1	0
Segment	x	x	x	o	x	o
Demoninator	1	1	1	1	1	1

→ Efficiency