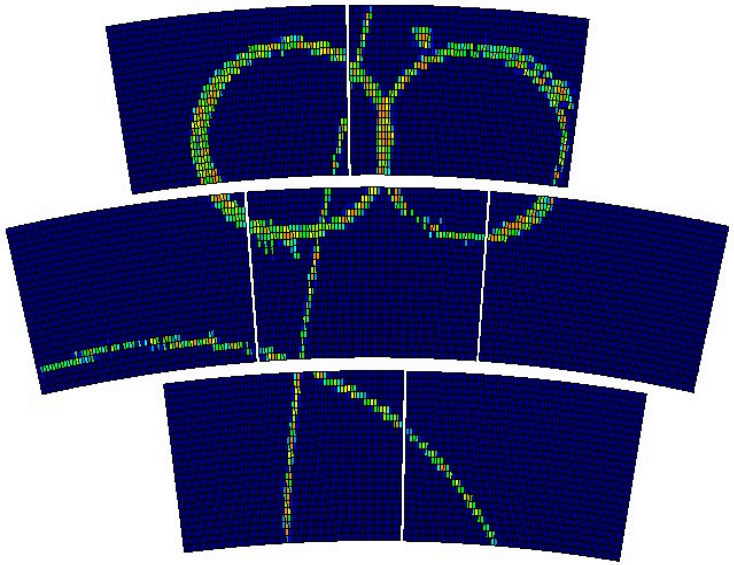
Test beam 2015.
Few first transverse resolution results.

Rashid Mehdiyev,

Carleton U



March 19, 2015

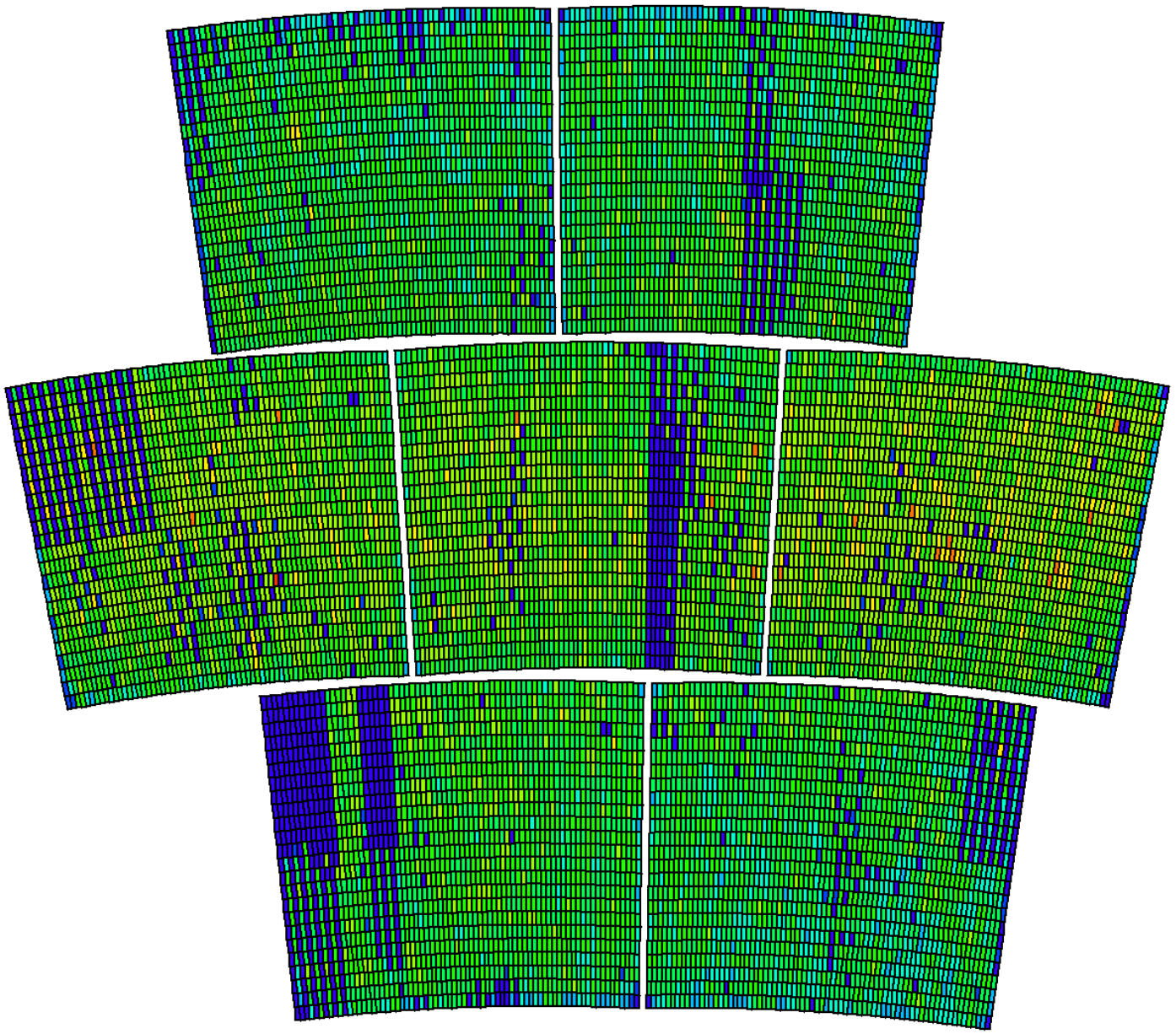
Test beam 2015

- Big program accomplished after few hiccups.
  - x-scan
  - Peaking Time scan
  - 0T for table alignment
  - 0T Z scan with 230V and 140V field
  - 1T Z scan with 230V and 140V field, 100 ns and 200 ns
  - Energy scan at 140V field, Beam = 1,2,3,4,5 GeV
  - Z scan, 1T with 3σ Zero suppression, 140V and 230V
  - 1T varying theta angle at one Z pos.
  - 0T Z scan at different phi angle (~ 4 degrees).
  - 1T phi angle dependence (2 and 4 degrees), 100ns
  - A lot of cosmics
  - Could not do another z scan with different phi angle.

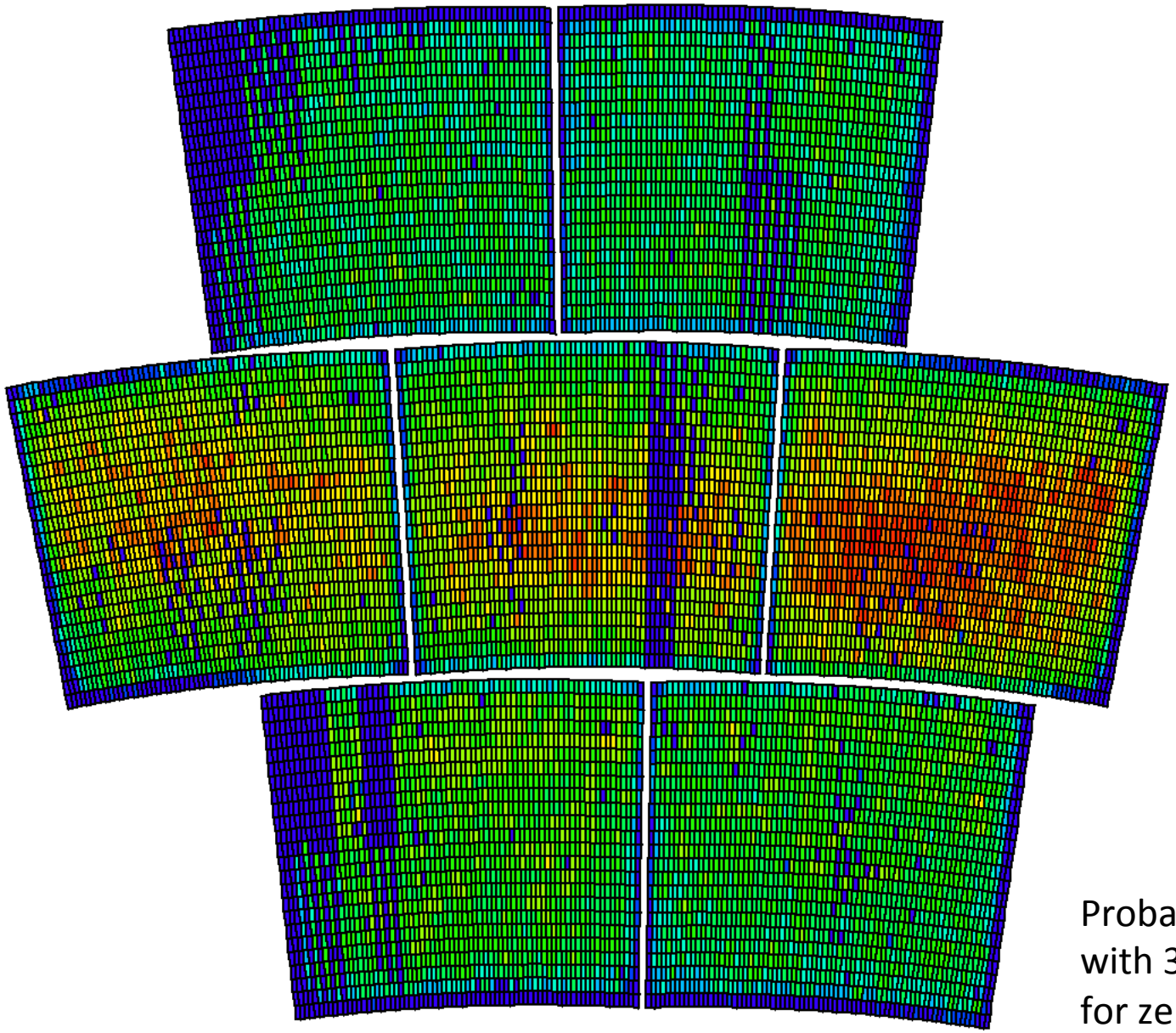
Black Diamond modules

- new resistive foil made of a 75 micron kapton covered with a 0.1 micron thick layer of hydrogenated diamond provided from Japan and assembled at CERN. Module 0
- Old CLK modules (3 and 5)

March, 9



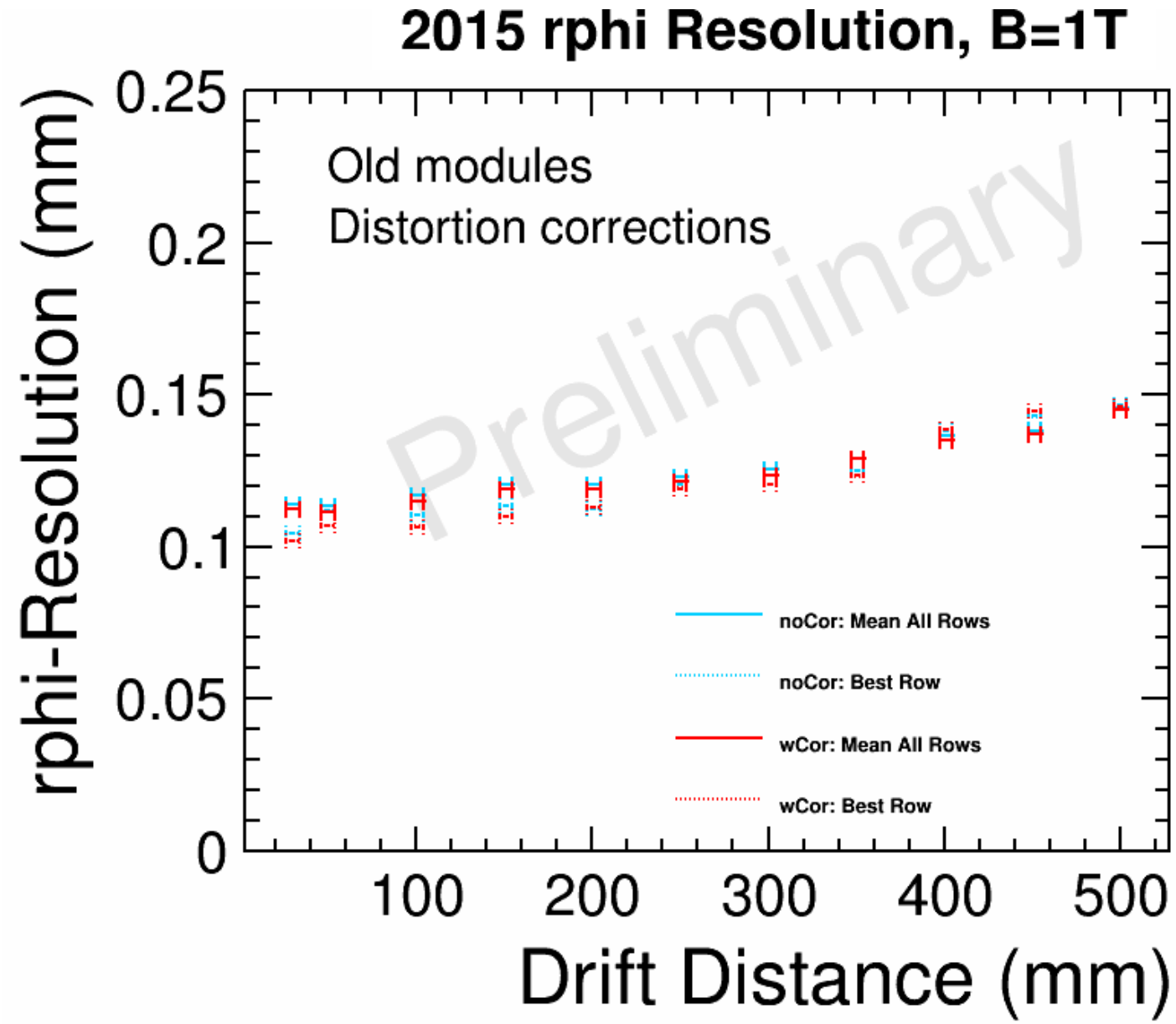
March, 13



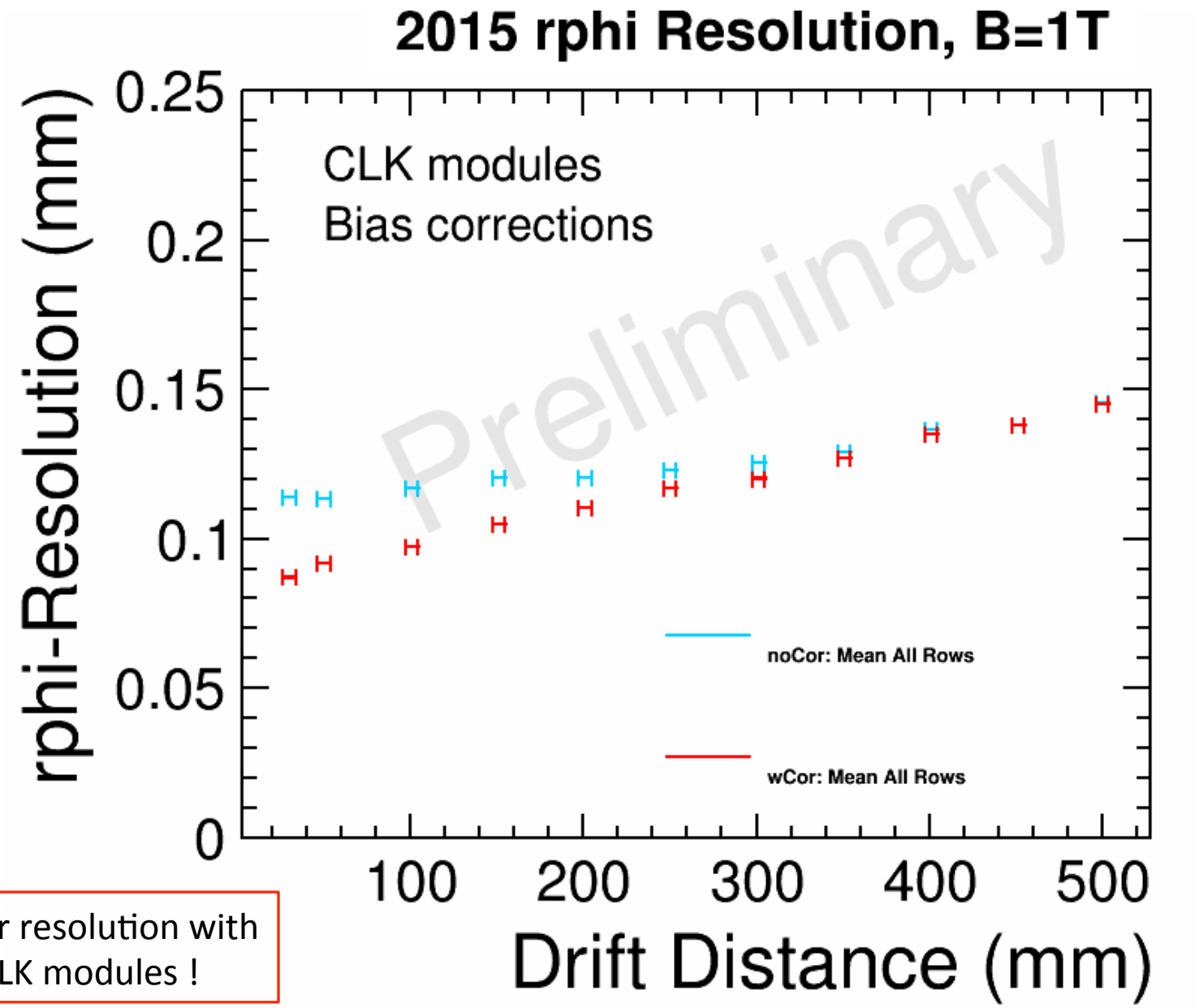
Probably taken
with 3 sigma cut
for zero suppression

1T Mag.field,
100 ns shaping time

CLK modules, after Dist. cor.

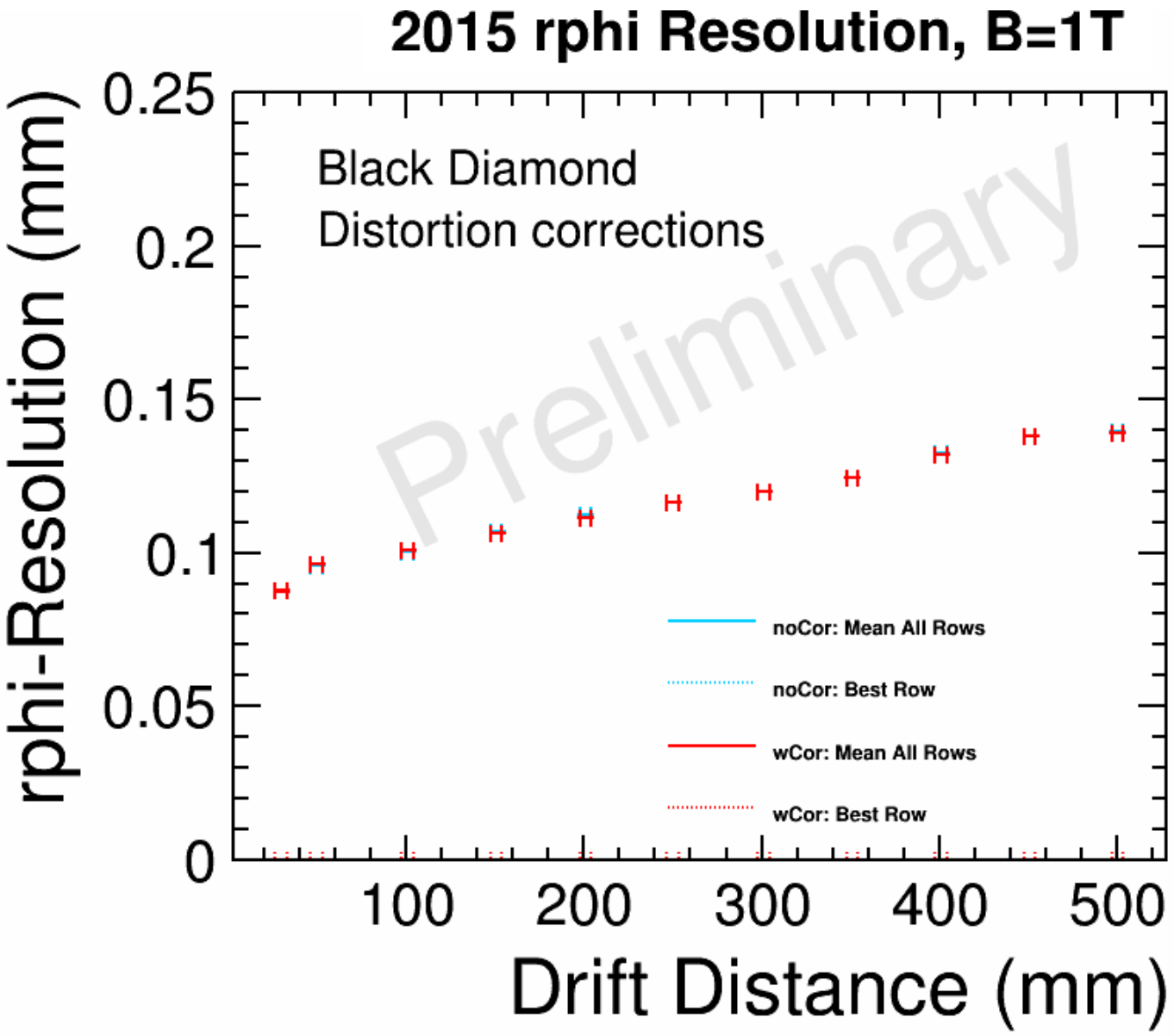


CLK modules, after Bias cor.

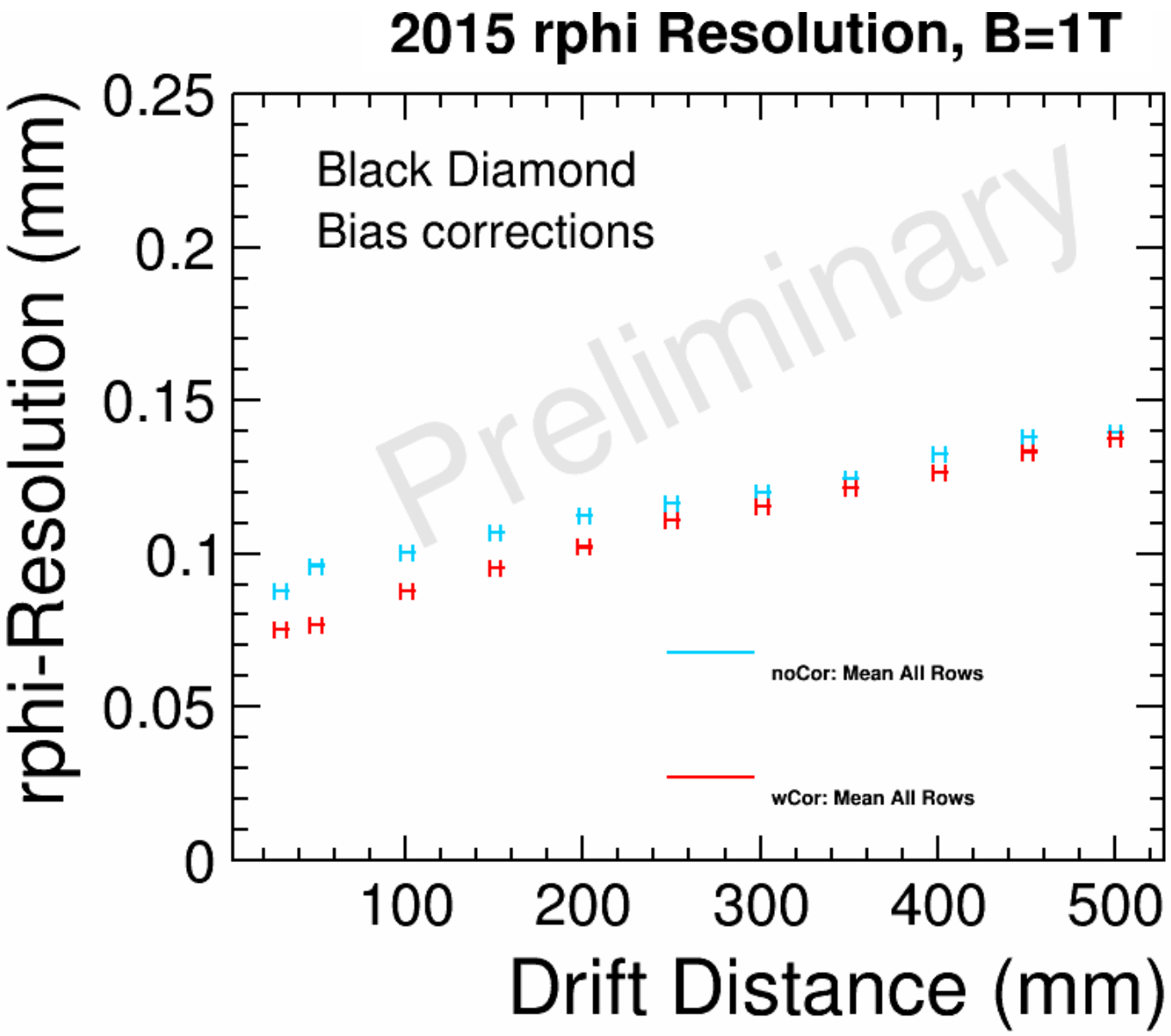


Better resolution with Old CLK modules !

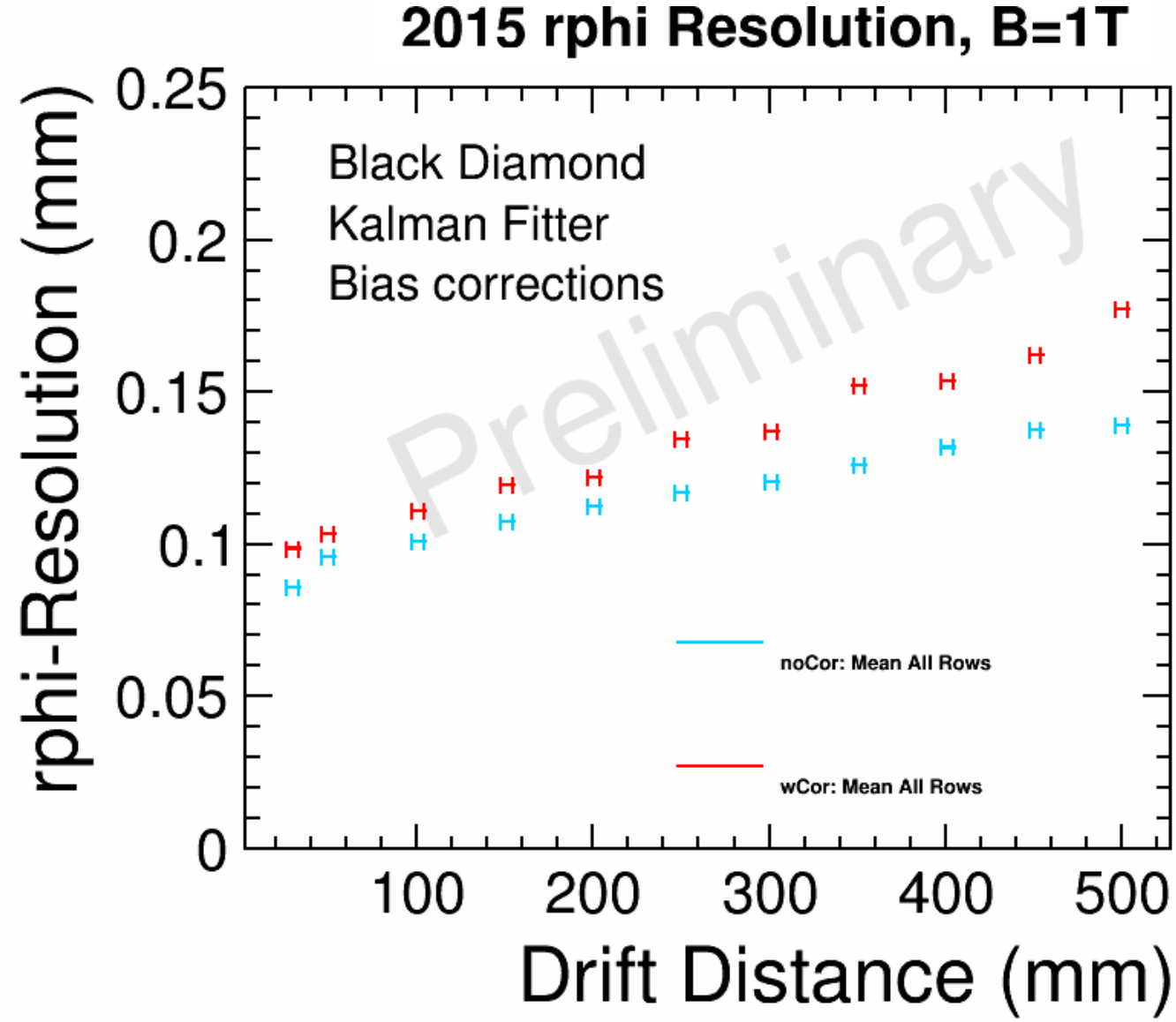
BD module, after Dist. cor.



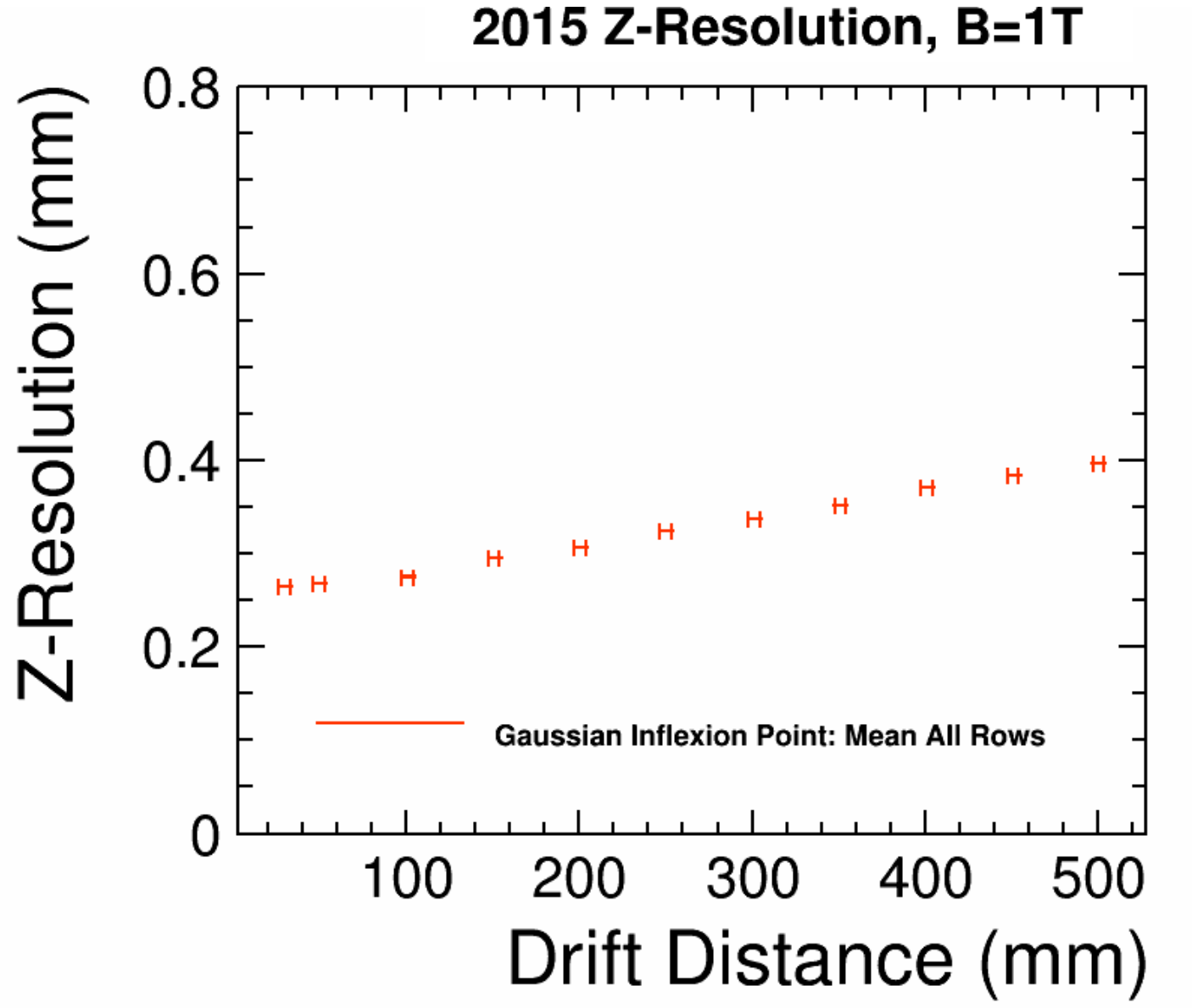
BD module, after Bias cor.



BD module, with Kalman Fitter



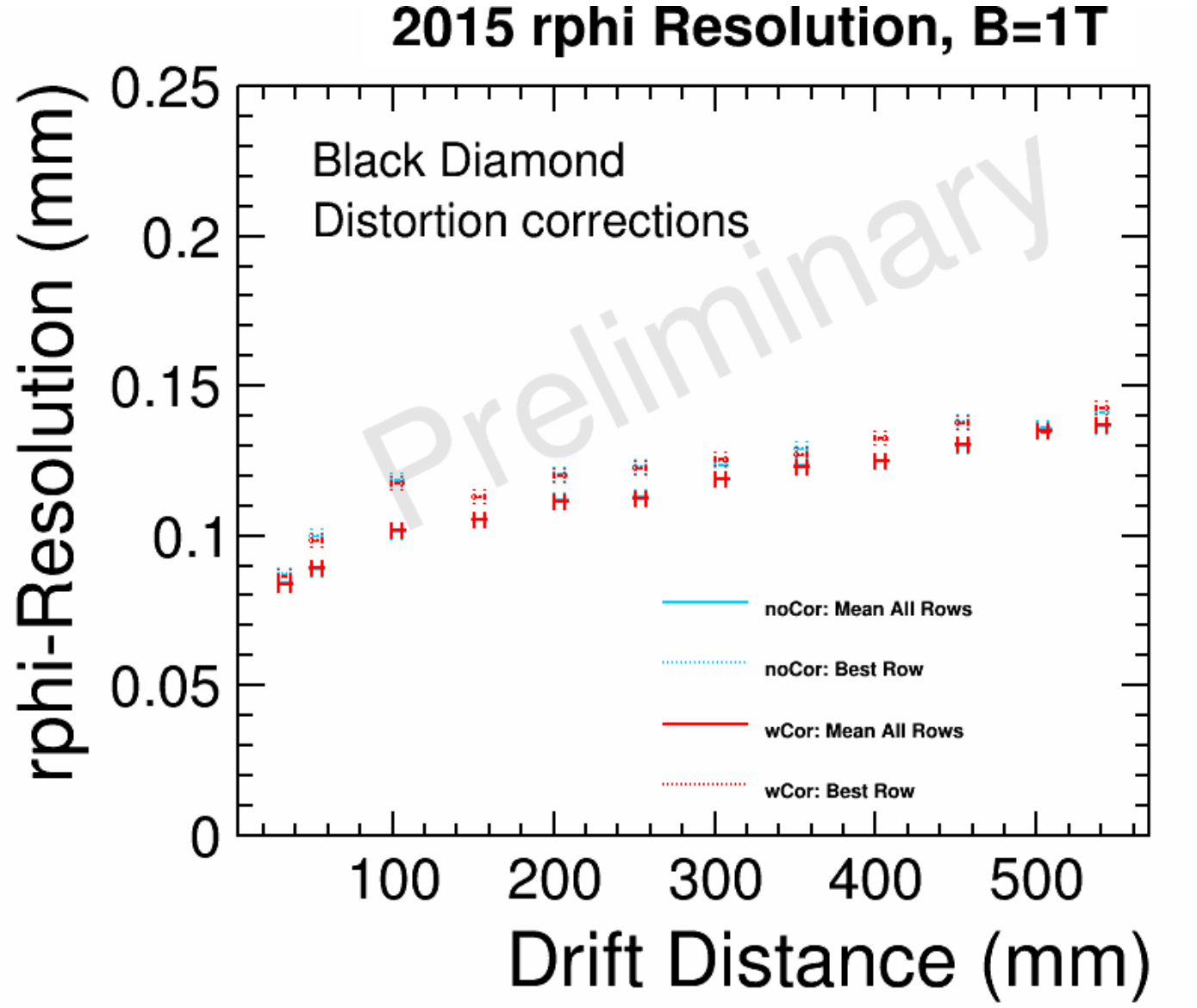
Does not look like I have got the improved resolution with Kalman Fitter !



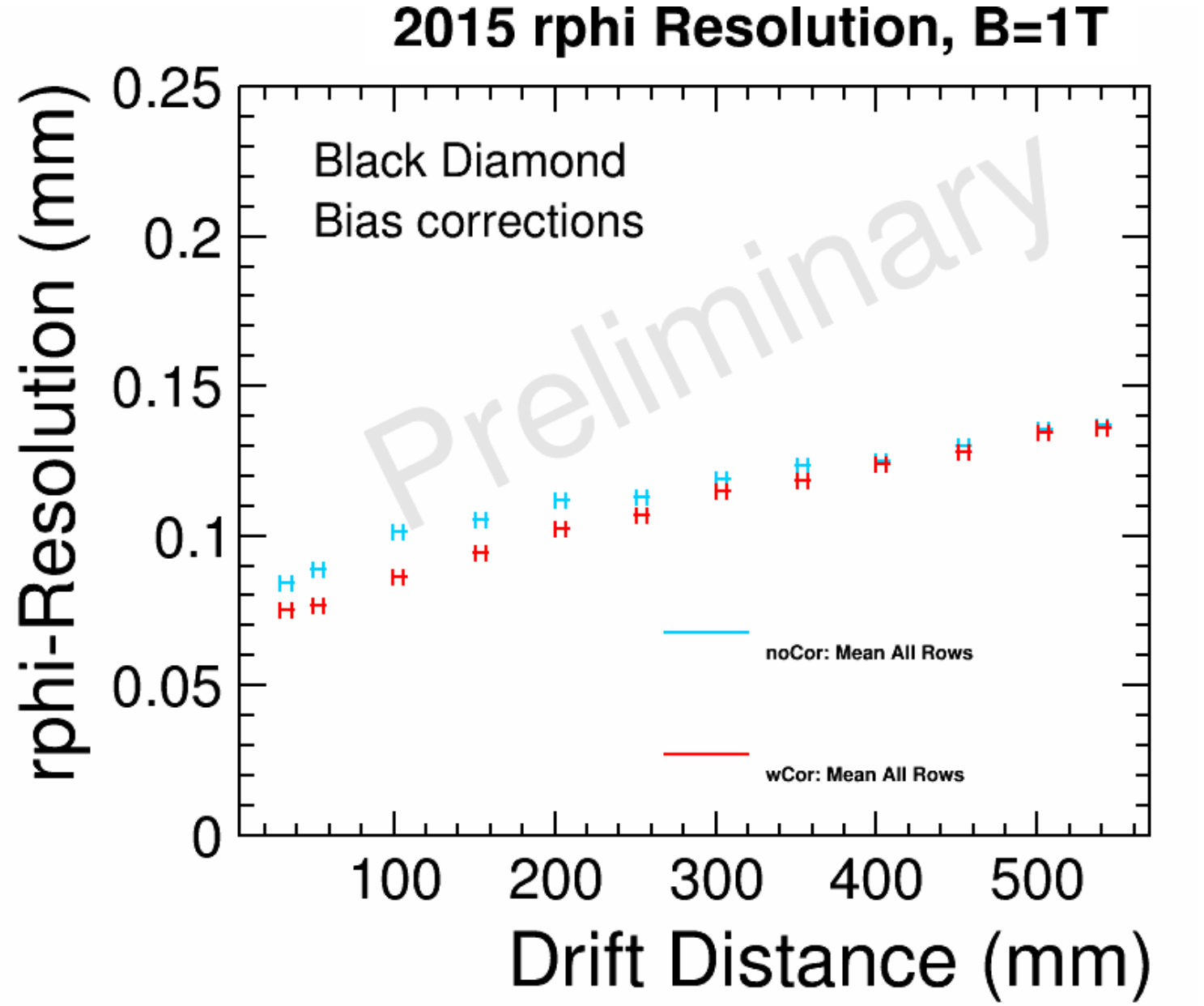
Looks fine as in the previous years.

1T, 200 ns shaping time

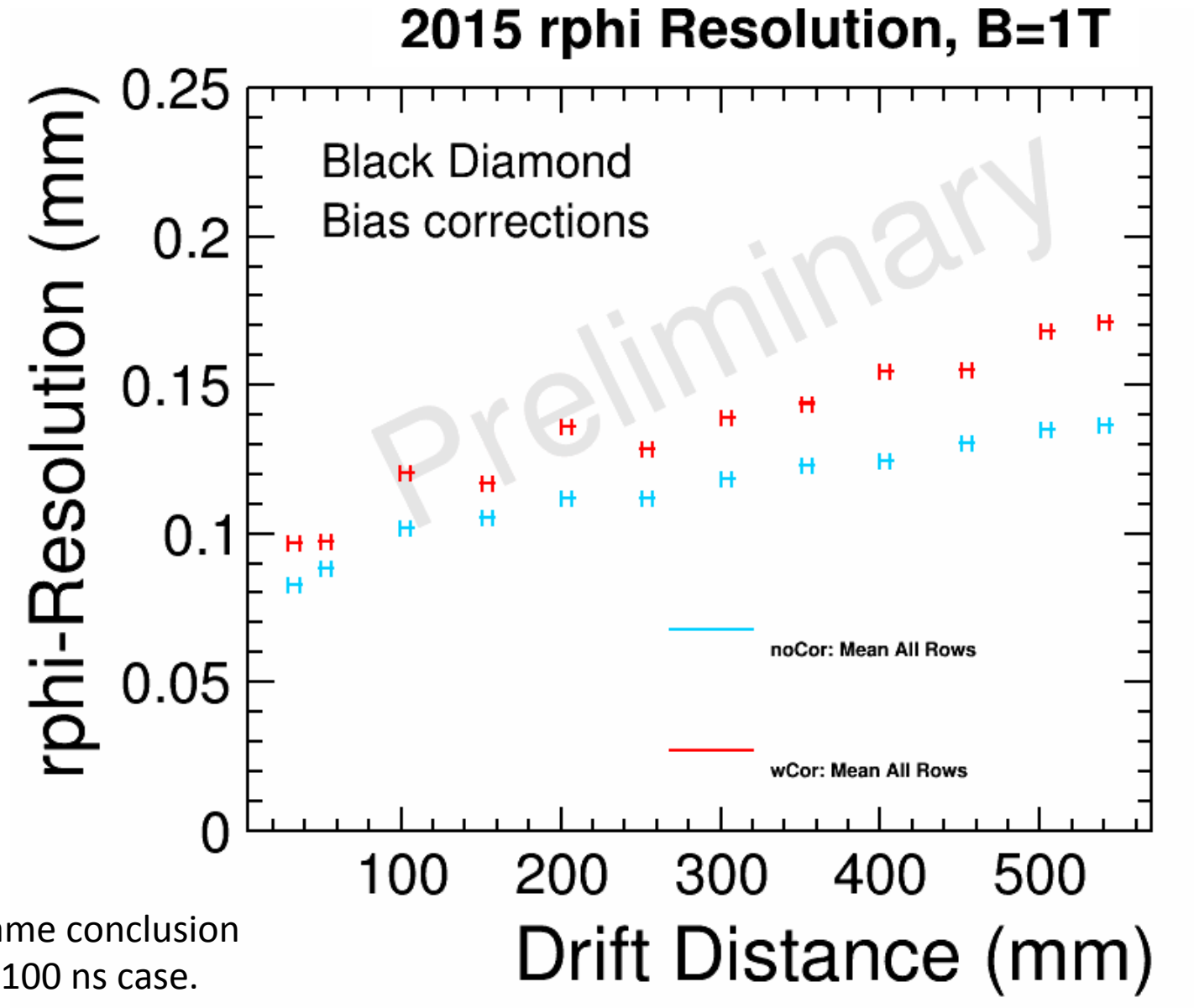
BD module, after Dist corr.



BD module, after Bias corr.



With Kalman Fitter



The same conclusion as for 100 ns case.

Summary

- Preliminary results on transverse resolution performance from the 2015 test beam look good.
- Even CLK module seems show better performance than in 2013-2014.
- Black Diamond volume shows very good transverse resolution performance.
- Very rude attempt to use Kalman Fitter as an alternative to SimpleHelix fitter, shows _not_ an adequate performance. Needs more studies.
- Plans to make comparisons with more finders/fitters.