Update on Strip Lorentz angle calibration with Millepede II

- Alignment/calibration setup
- Lorentz angle evolution (deco/peak)

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Tracker alignment meeting

DESY, Hamburg 12.09.2013

Alignment setup: mp1338

Starting geometry: CRAFT12; **GT:** FT_R_53_V21

Data used in alignment :

- MinimumBias | A+B+C+D
- SingleMuon | A+B+C+D
- ZtoMuMu | A+B+C+D
- Cosmics 3.8T | A+B+C+D
- Cosmics 0T (10 GeV P estim.) | A+C
- Collision 0T (3 GeV P estim.) | C

Used tracks: ~ 53 M (for LA calibration, for BP calibration)

Alignables:

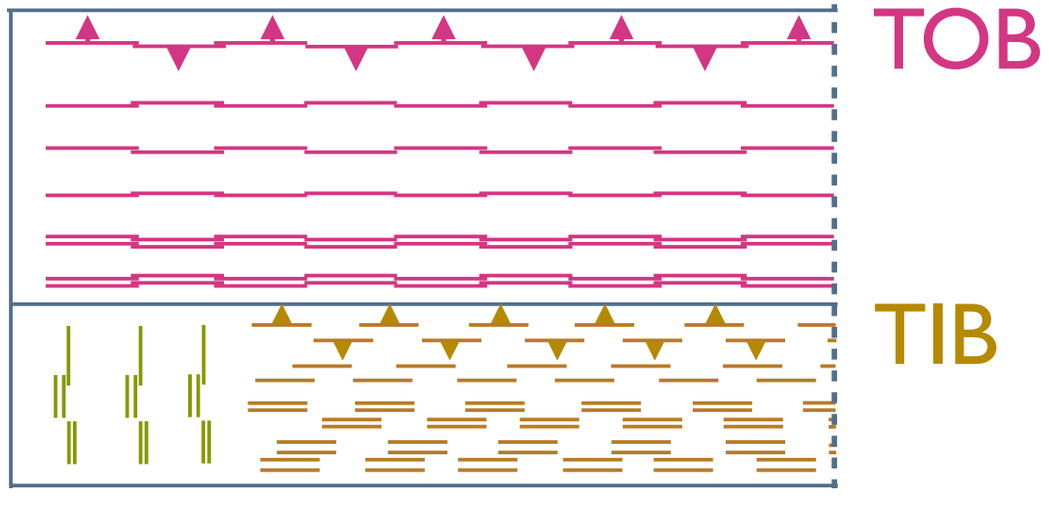
Large structures, Pixel modules: `111111` Strip modules: `101111`

Enabled Kinks&Bows TEC modules: `111111`

Calibration setup: mp1338

LA calibration setup:

- **BPIX** (24 x 65 IOVs)
- **FPIX** (1 x 65 IOVs)



- **TIB**:
  - Layer 4:
    12 parameters: (1 layer x 12 rings)
  - Layer 3:
    24 parameters: (1 layer x 12 rings x 2 **φ** sections)
    ↳ 1. $|\varphi| < 1.57$ (hot modules) 2. $|\varphi| > 1.57$ [only LA]
  - Layers 1-2:
    48 parameters: (2 layers x 12 rings x 2 [rphi | stereo])

Each line of the sketch has own calibration parameter (LA/BP).

Calibration setup: mp1338

LA calibration setup:

- **TOB**:
  - Layers 4-6:
    36 parameters: (3 layer x 12 rings)
  - Layer 3:
    24 parameters: (1 layer x 12 rings x 2 φ sections)
    ↳ 1. $|\varphi| < 1.57$ (hot modules) 2. $|\varphi| > 1.57$ [only LA]
  - Layers 1-2:
    48 parameters: (2 layers x 12 rings x 2 [rphi | stereo])

Time dependence:

- Lorentz angle: 6 IOVs [DECO]
- Lorentz angle: 2 IOVs [PEAK]
- Backplane correction: 2 IOVs

Alignment setup: mp1340

Starting geometry: mp1338; **GT:** FT_R_53_V21

Used tracks: ~ 53 M (for LA calibration, for BP calibration)

Alignables:

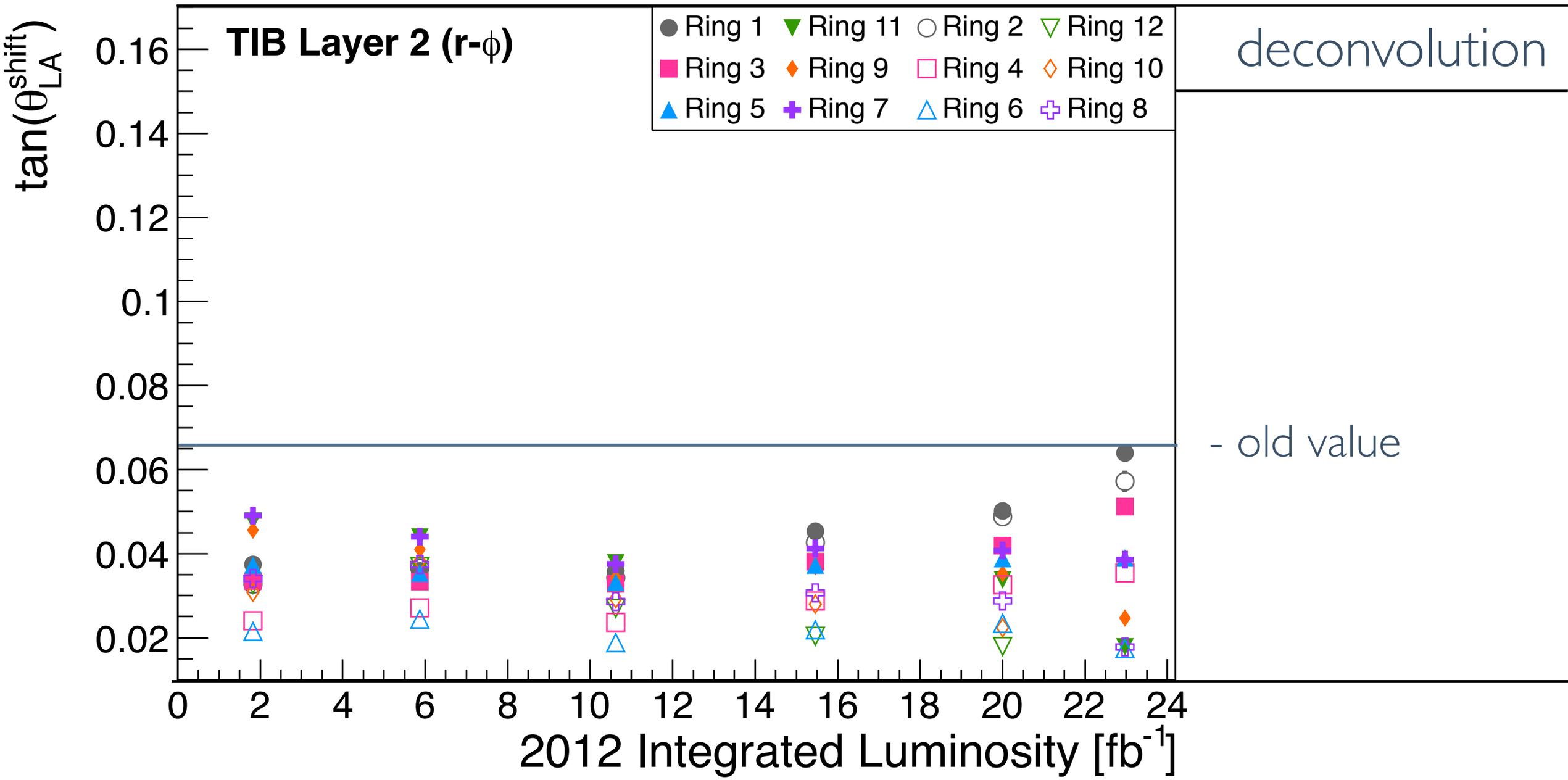
Large structures: **111111** TIB,TOB modules: **101000**

Disabled Kinks&Bows (taken from mp1338)

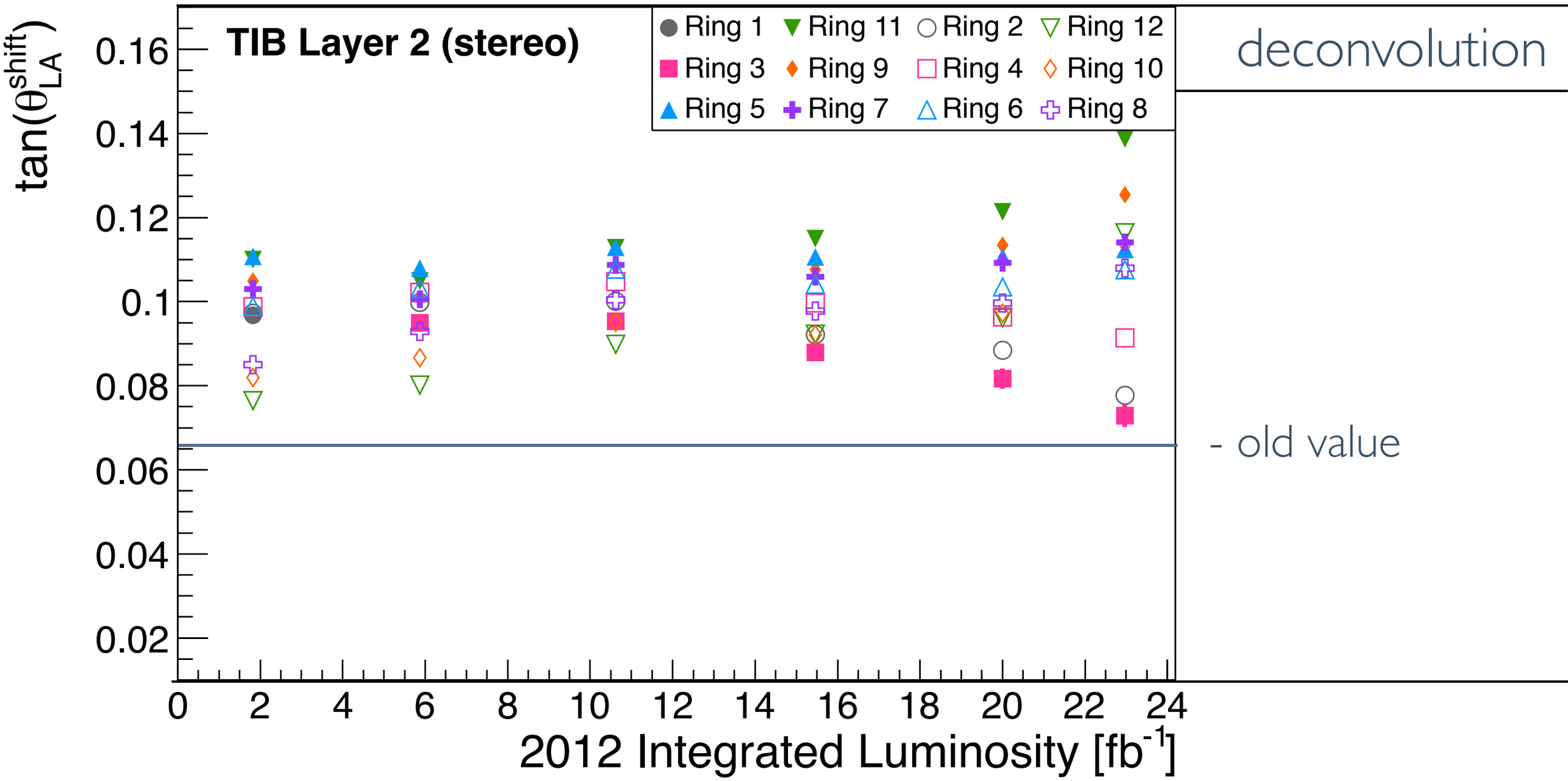
Pede in the inversion mode

Same calibration setup as in mp1338

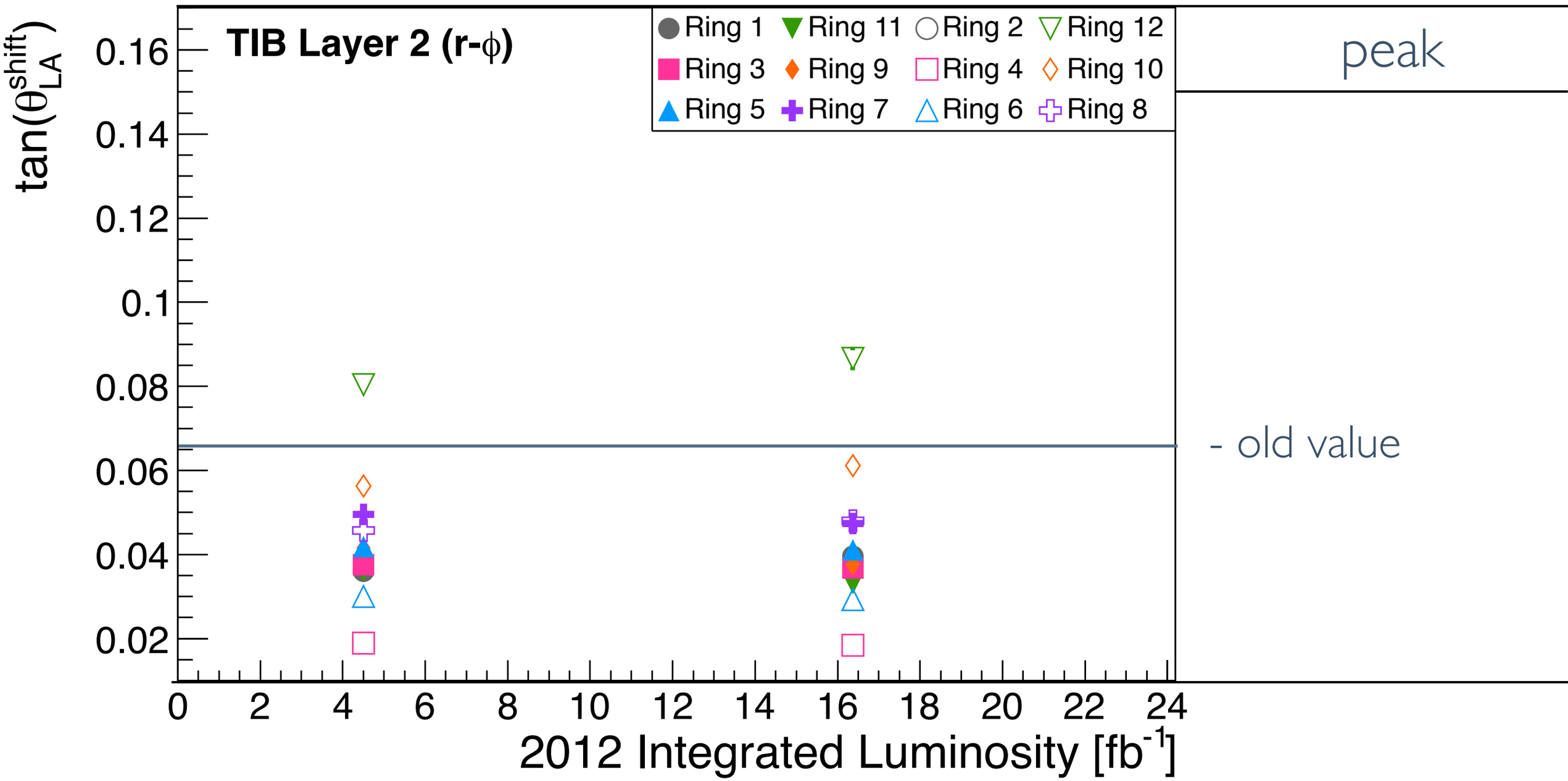
LA evolution: TIB (Layer 2) [mp1338]



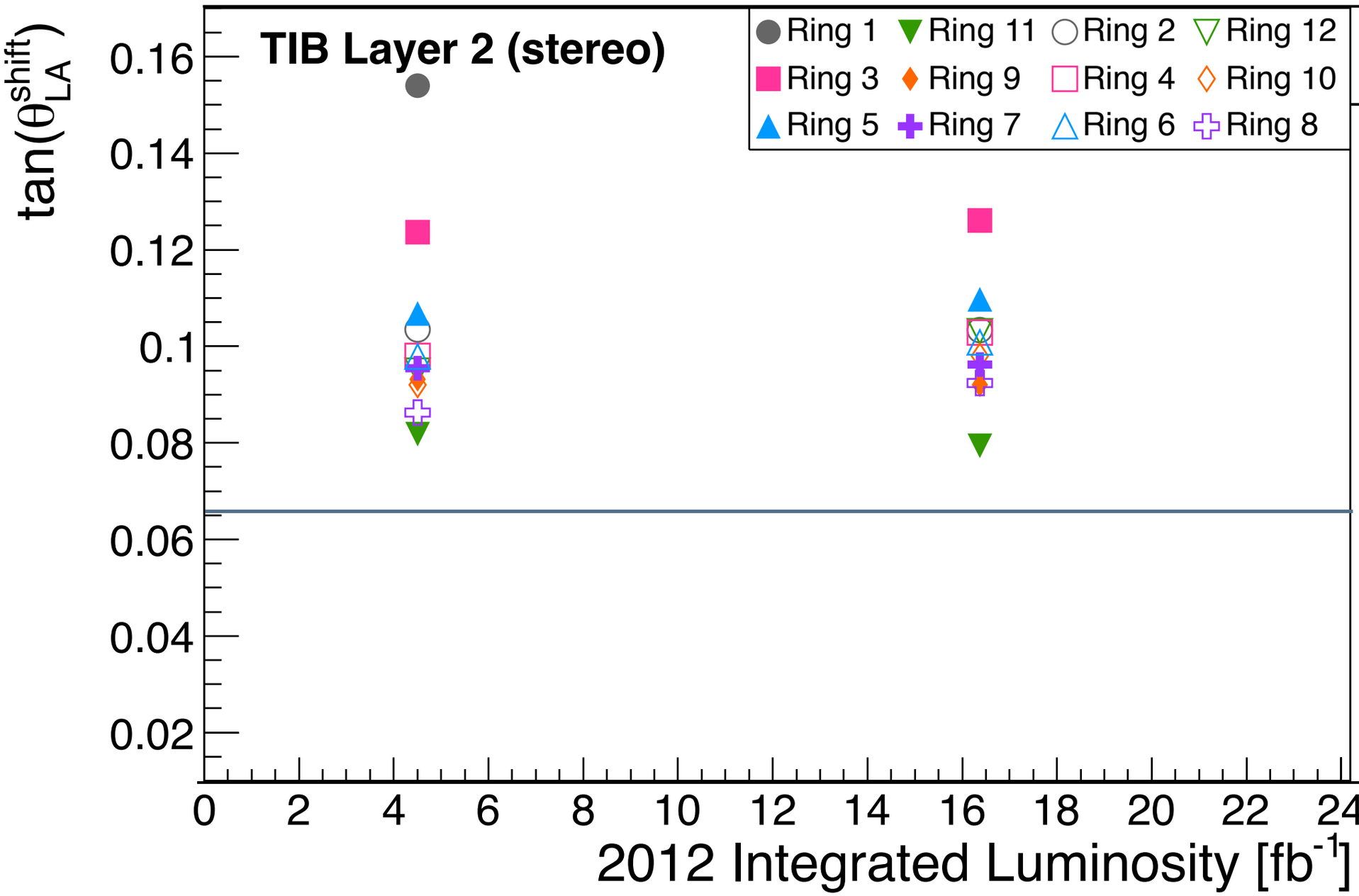
LA evolution: TIB (Layer 2) [mp1338]



LA evolution: TIB (Layer 2) [mp1338]



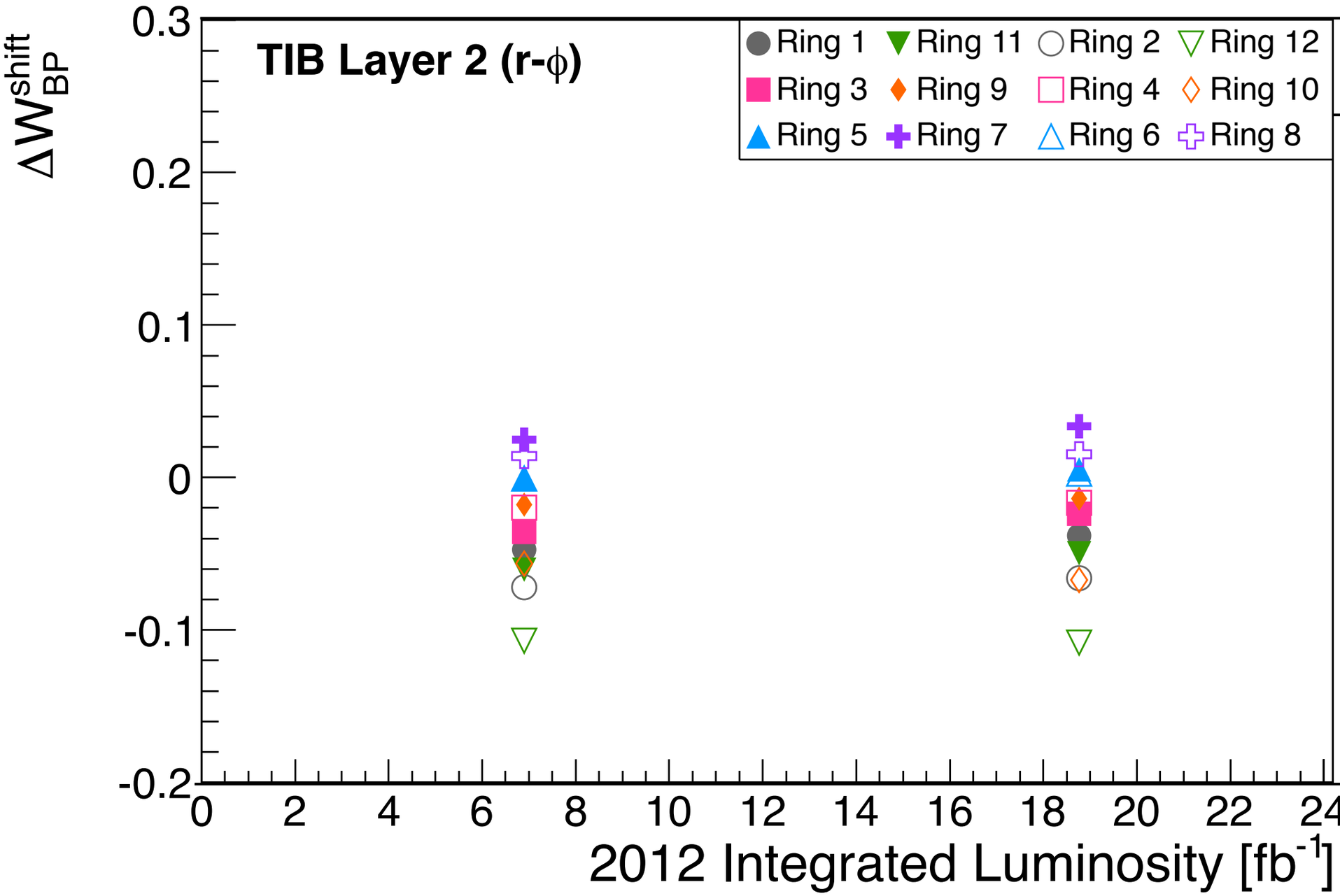
LA evolution: TIB (Layer 2) [mp1338]



peak

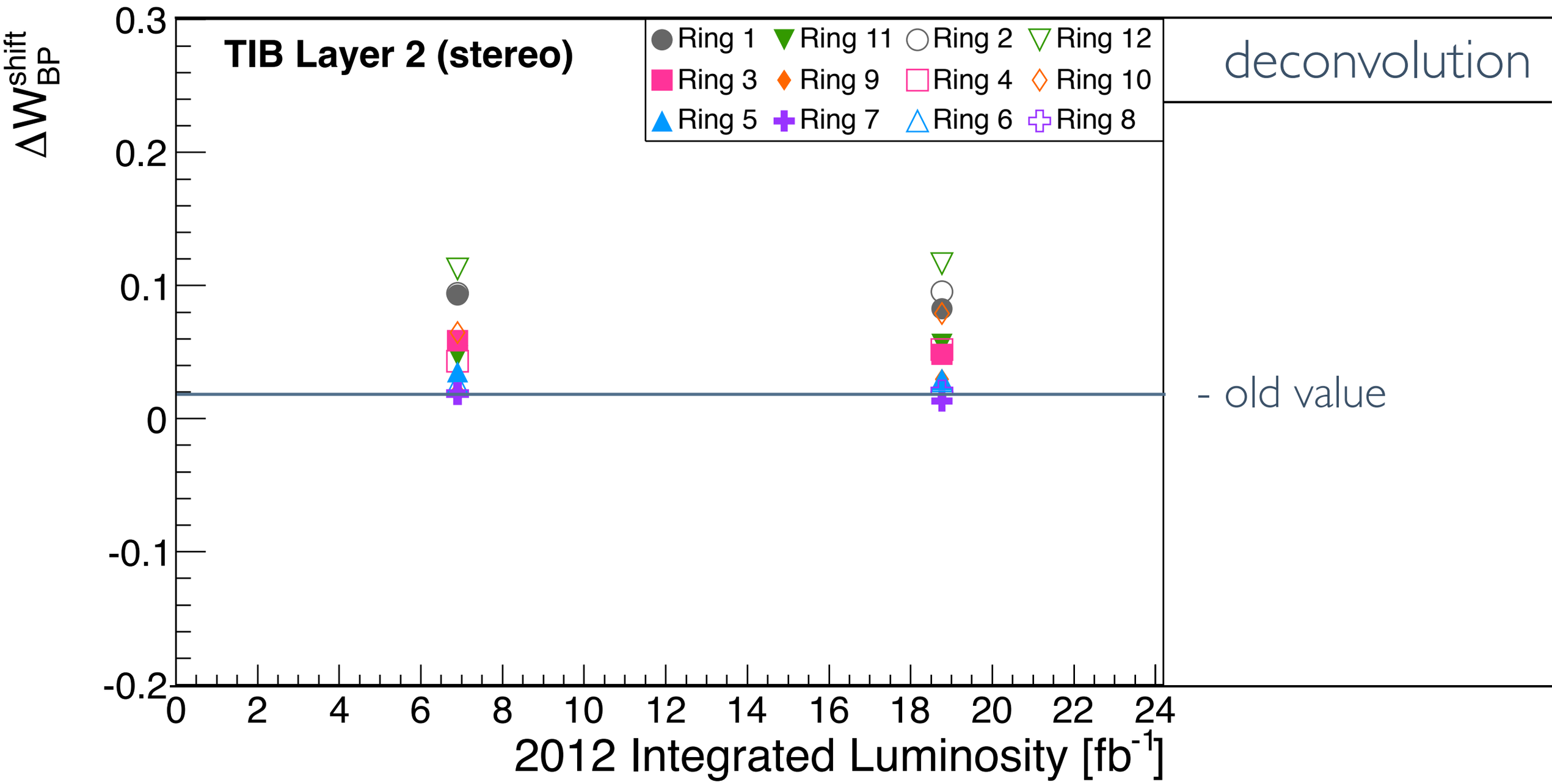
- old value

BP evolution: TIB (Layer 2) [mp1338]



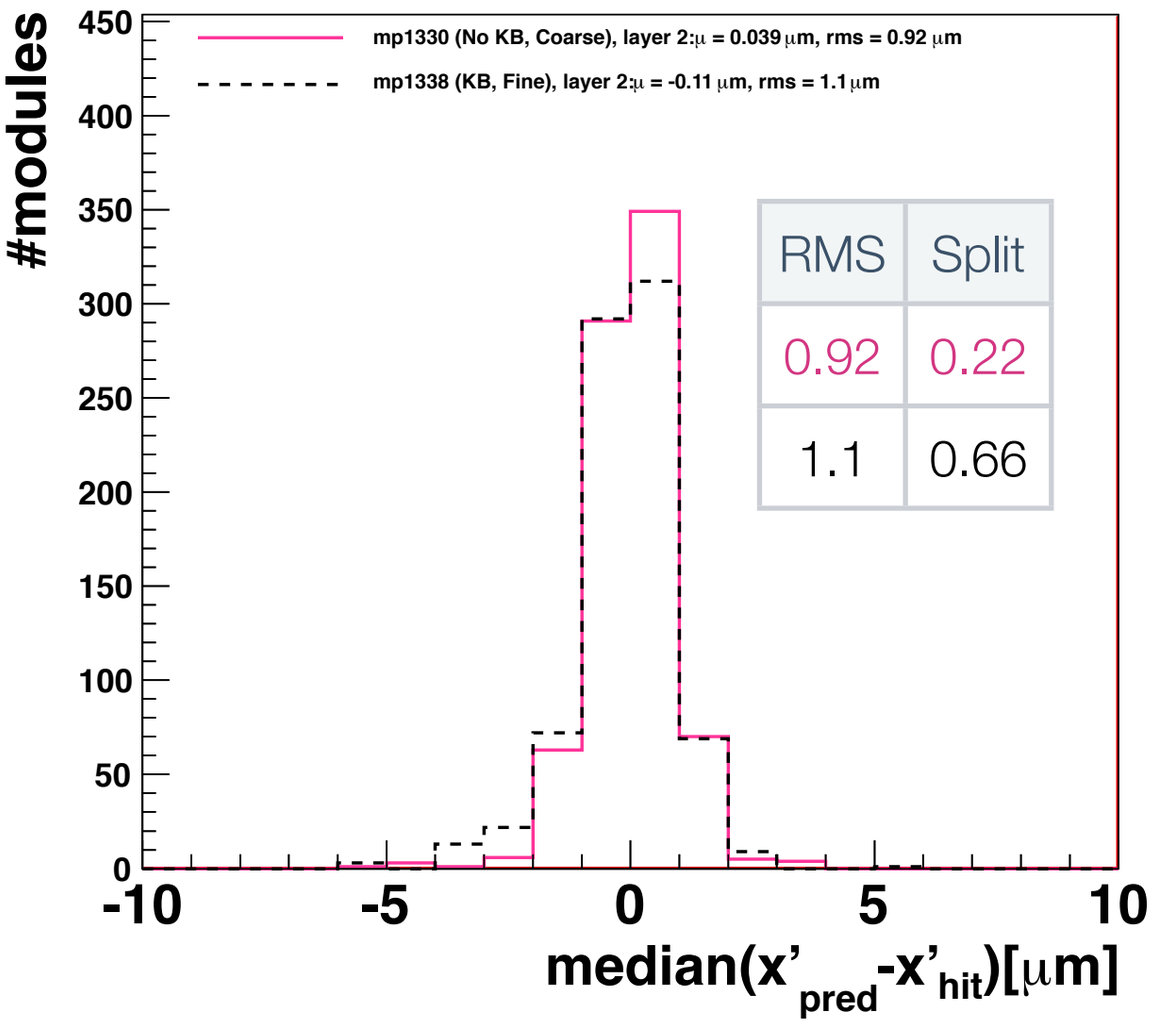
deconvolution

BP evolution: TIB (Layer 2) [mp1338]

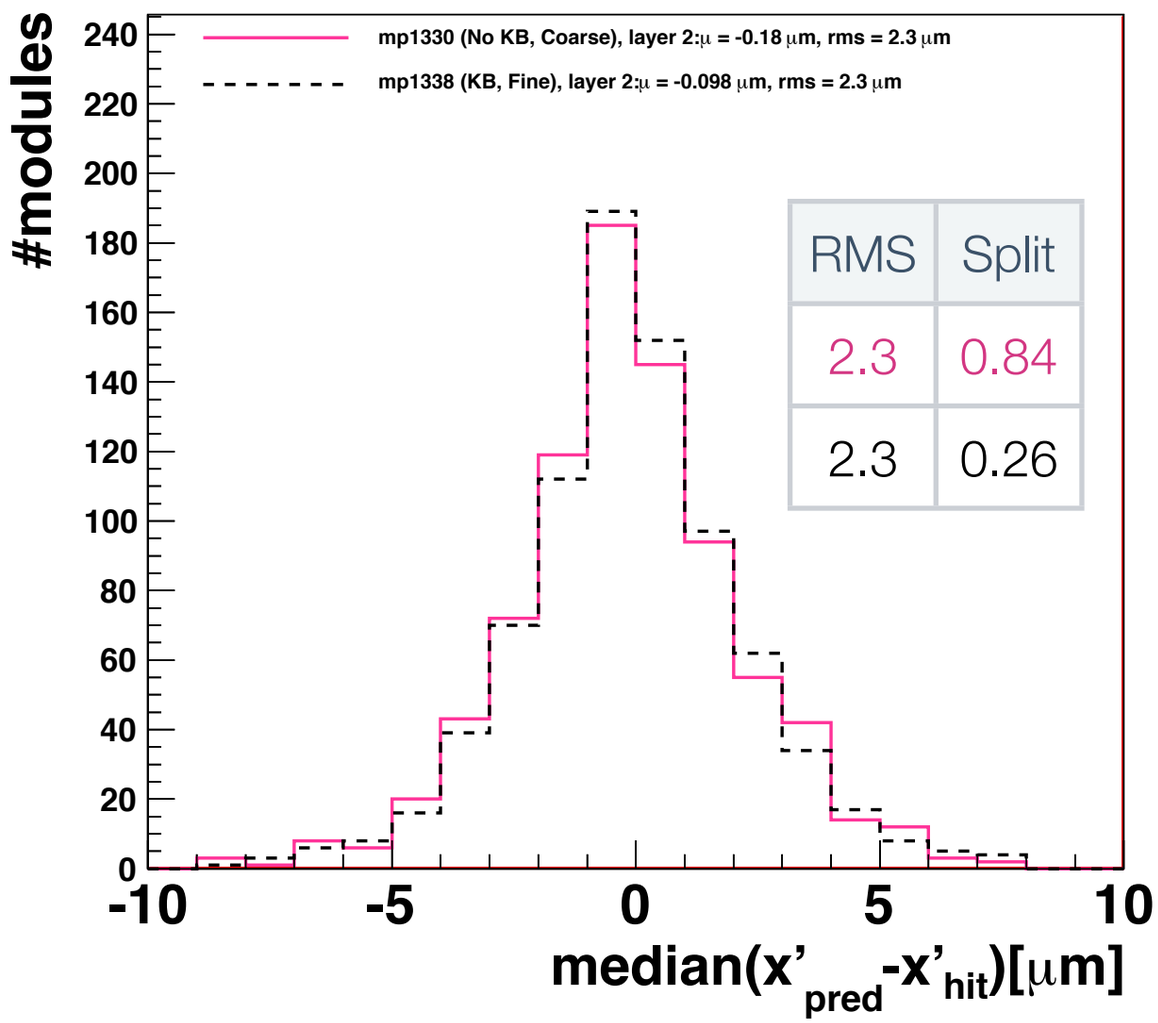


LA evolution: TIB (Layer 2) [mp1338]

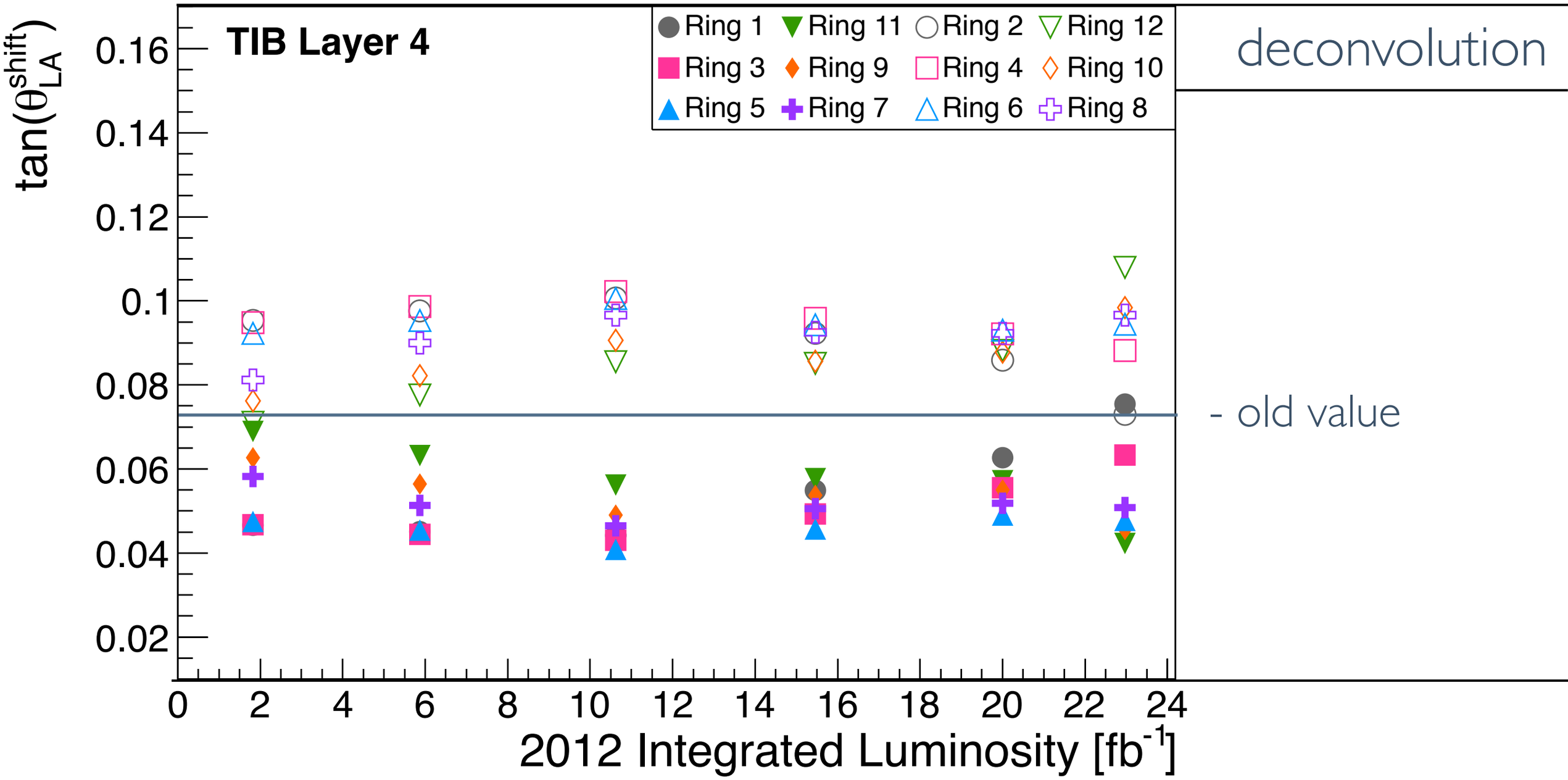
Distribution of the median of the residuals in TIB



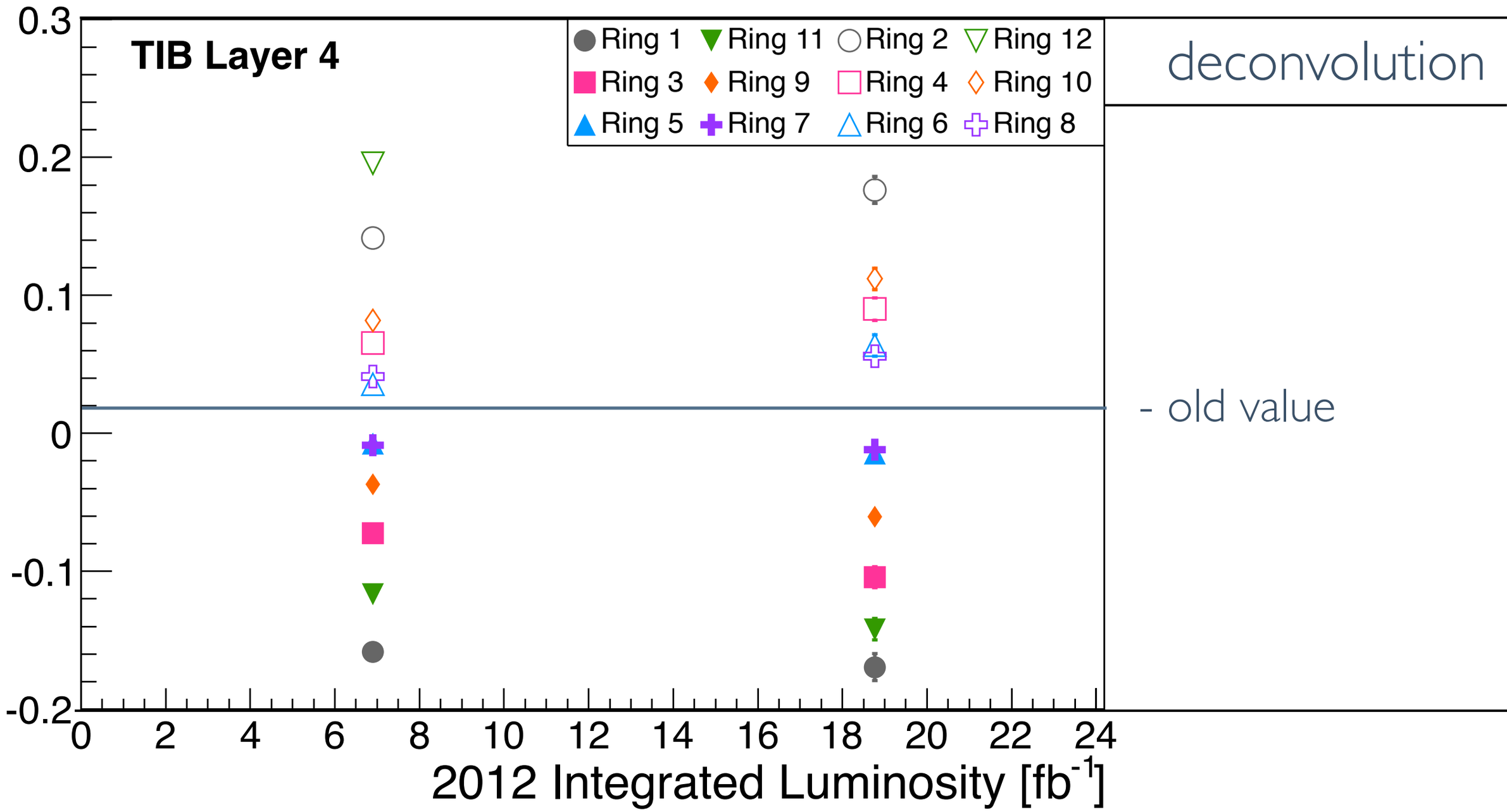
Distribution of the median of the residuals in TIB



LA evolution: TIB (Layer 4) [mp1338]



BP evolution: TIB (Layer 4) [mp1338]

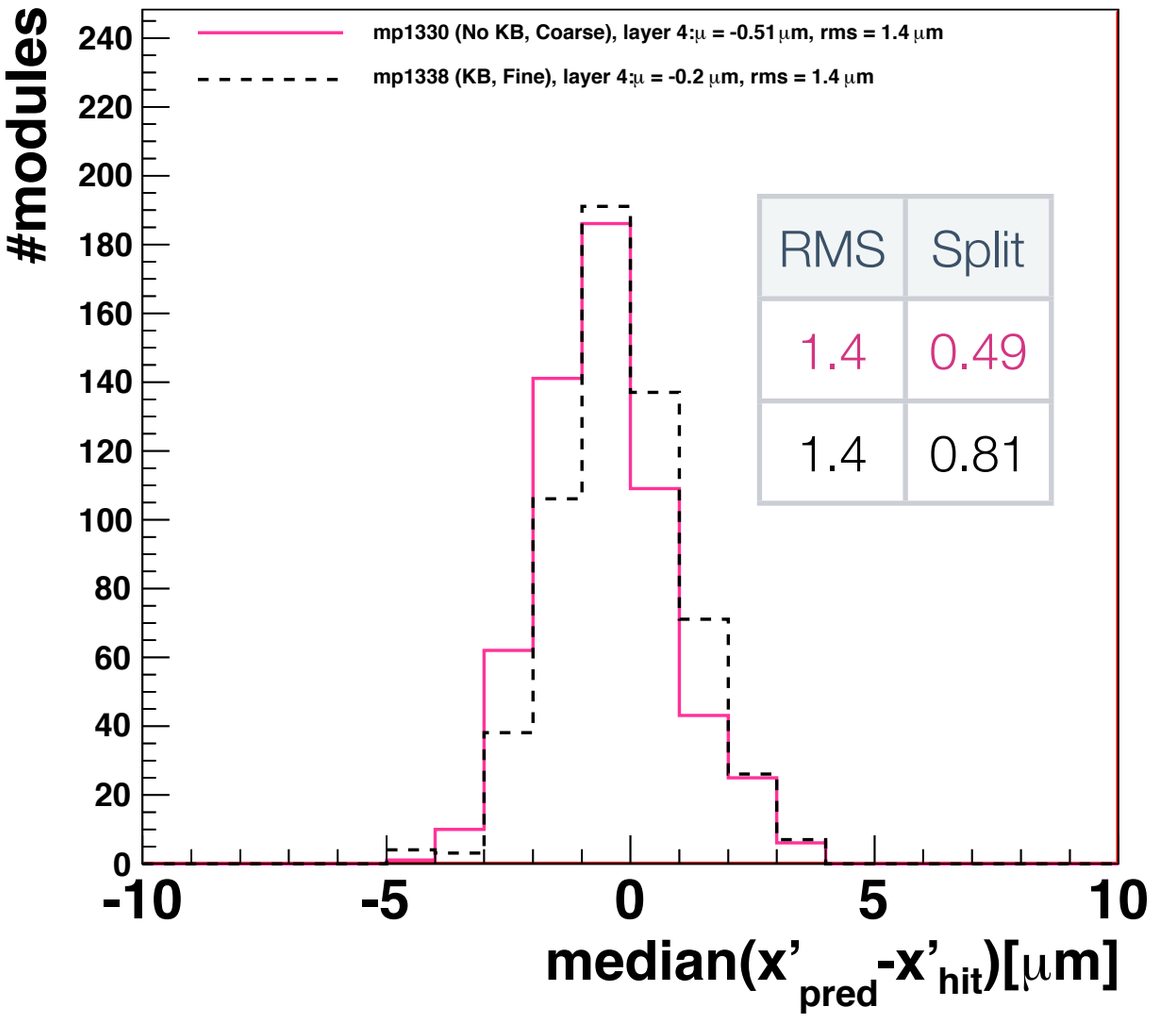


deconvolution

- old value

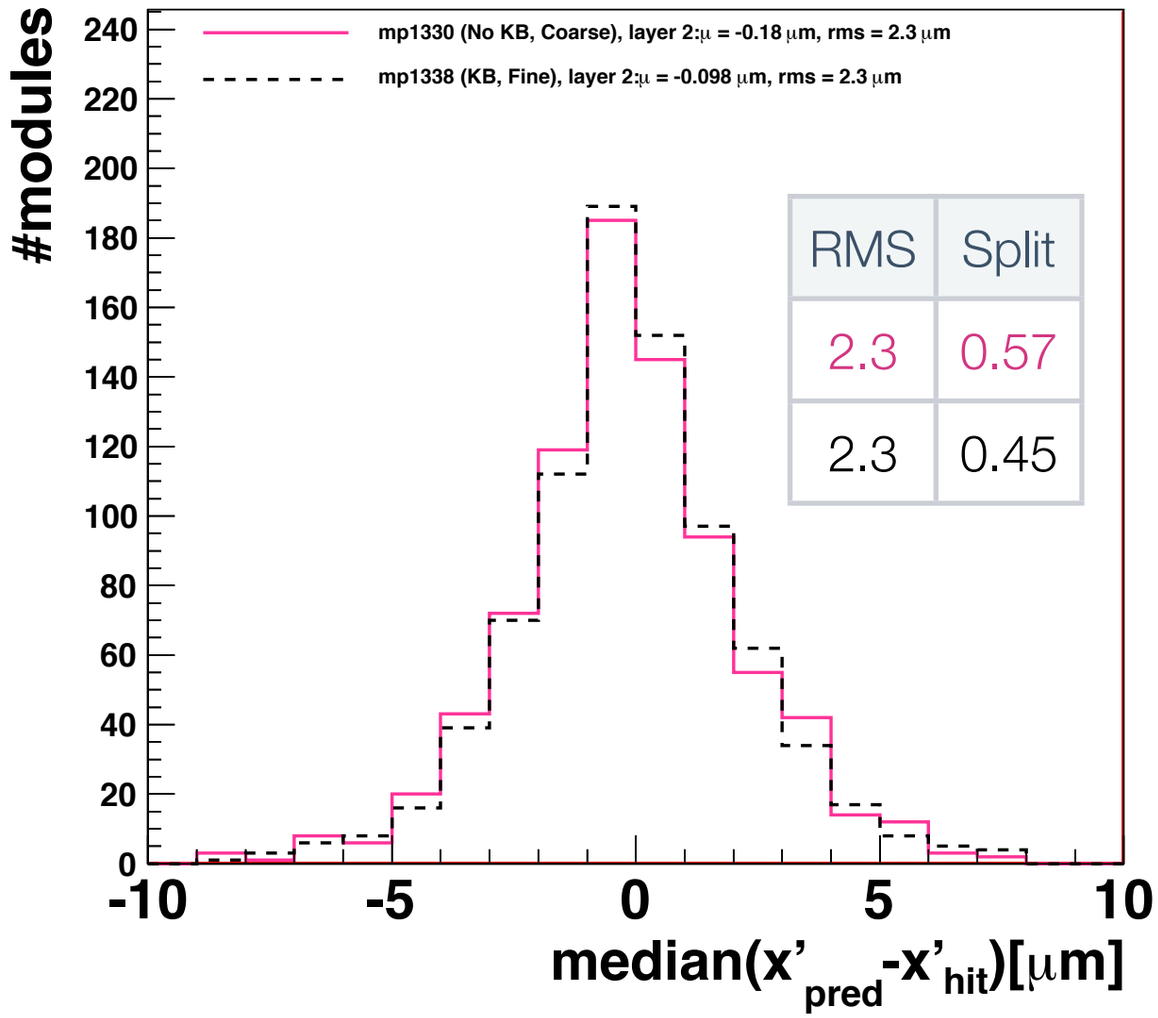
LA evolution: TIB (Layer 4) [mp1338]

Distribution of the median of the residuals in TIB



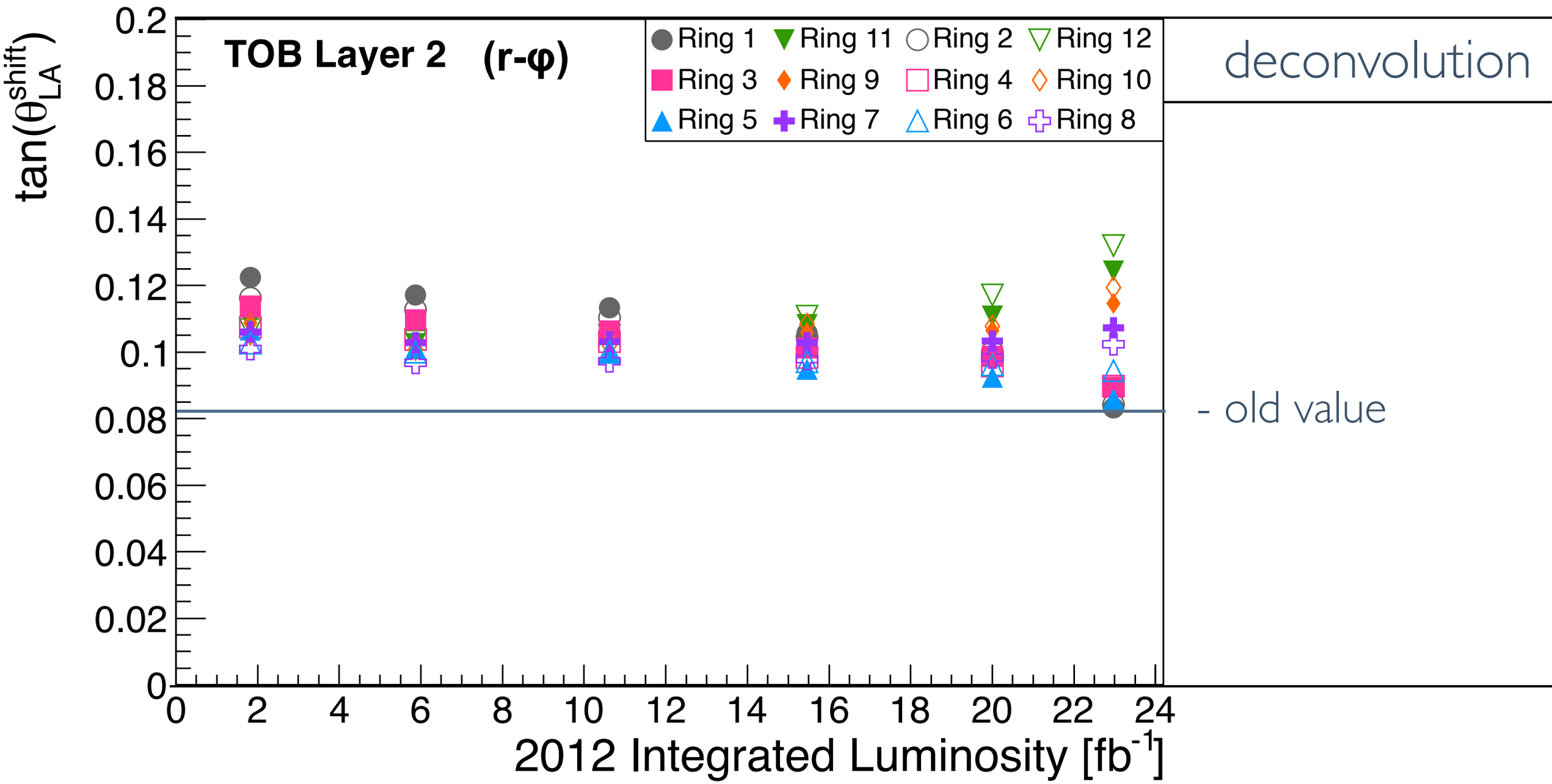
RMS	Split
1.4	0.49
1.4	0.81

Distribution of the median of the residuals in TIB

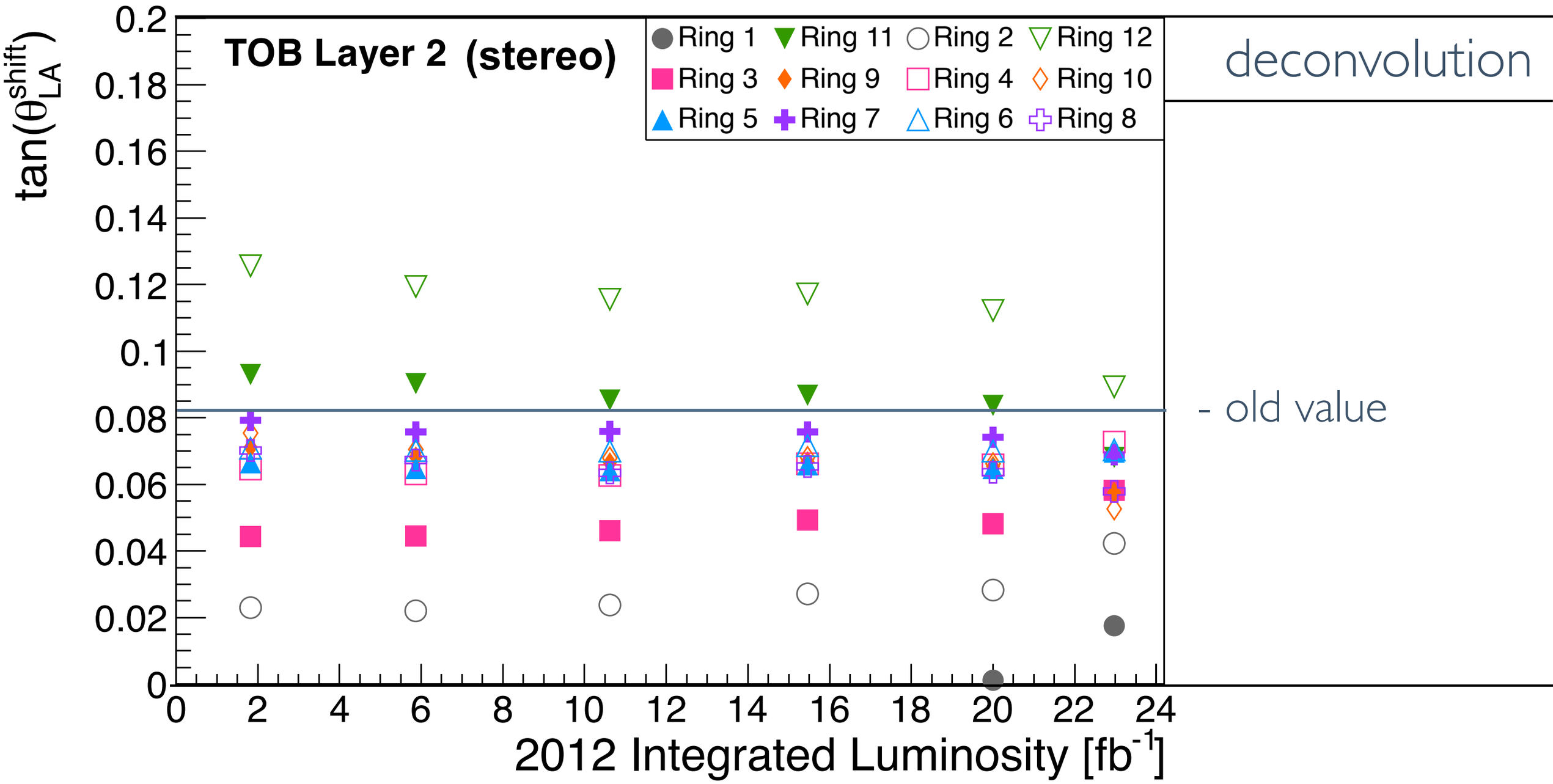


RMS	Split
2.3	0.57
2.3	0.45

LA evolution: TOB (Layer 2) [mp1338]

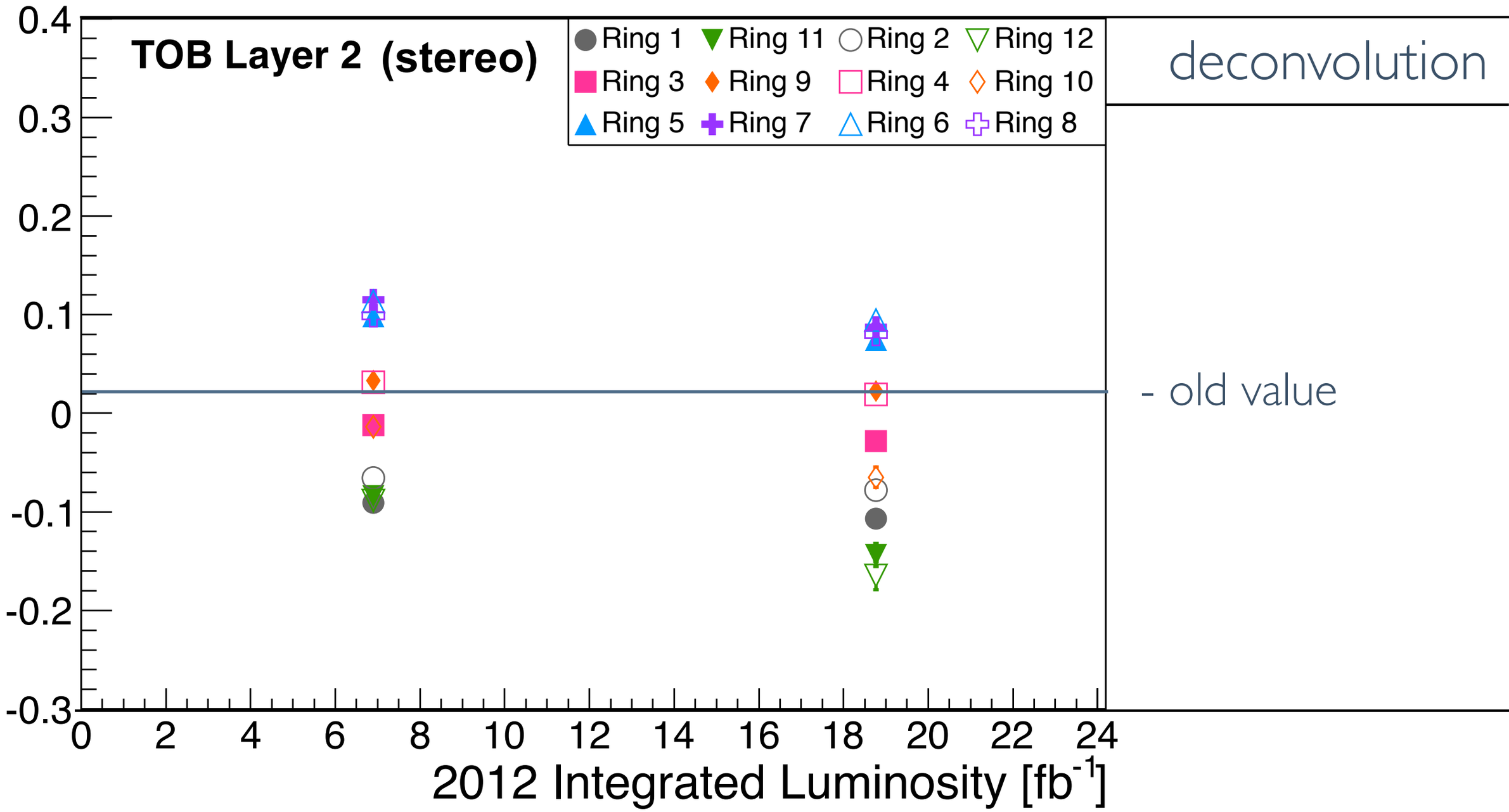


LA evolution: TOB (Layer 2) [mp1338]



- Negative values in Ring 1.

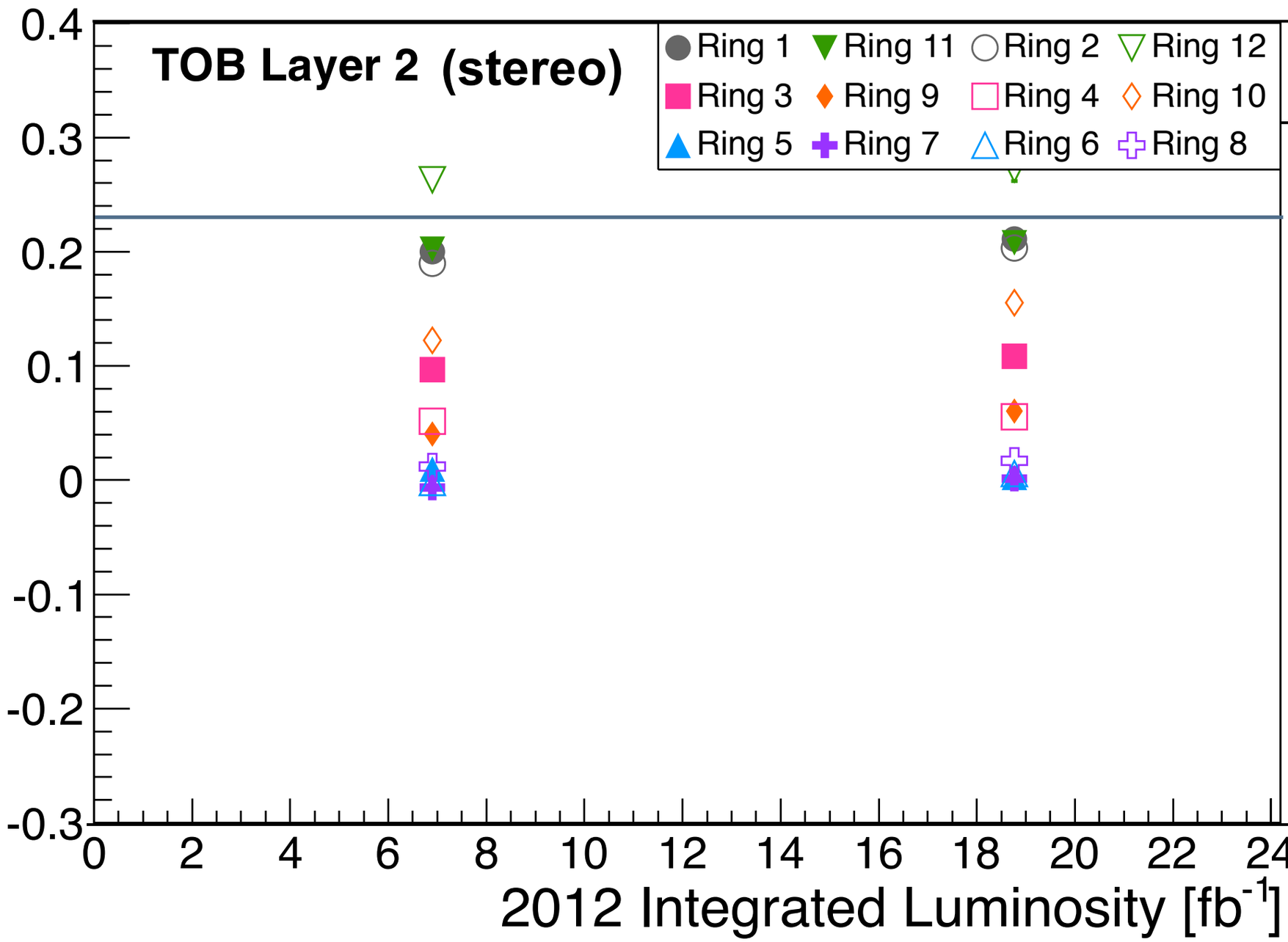
BP evolution: TOB (Layer 2) [mp1338]



deconvolution

- old value

BP evolution: TOB (Layer 2) [mp1338]

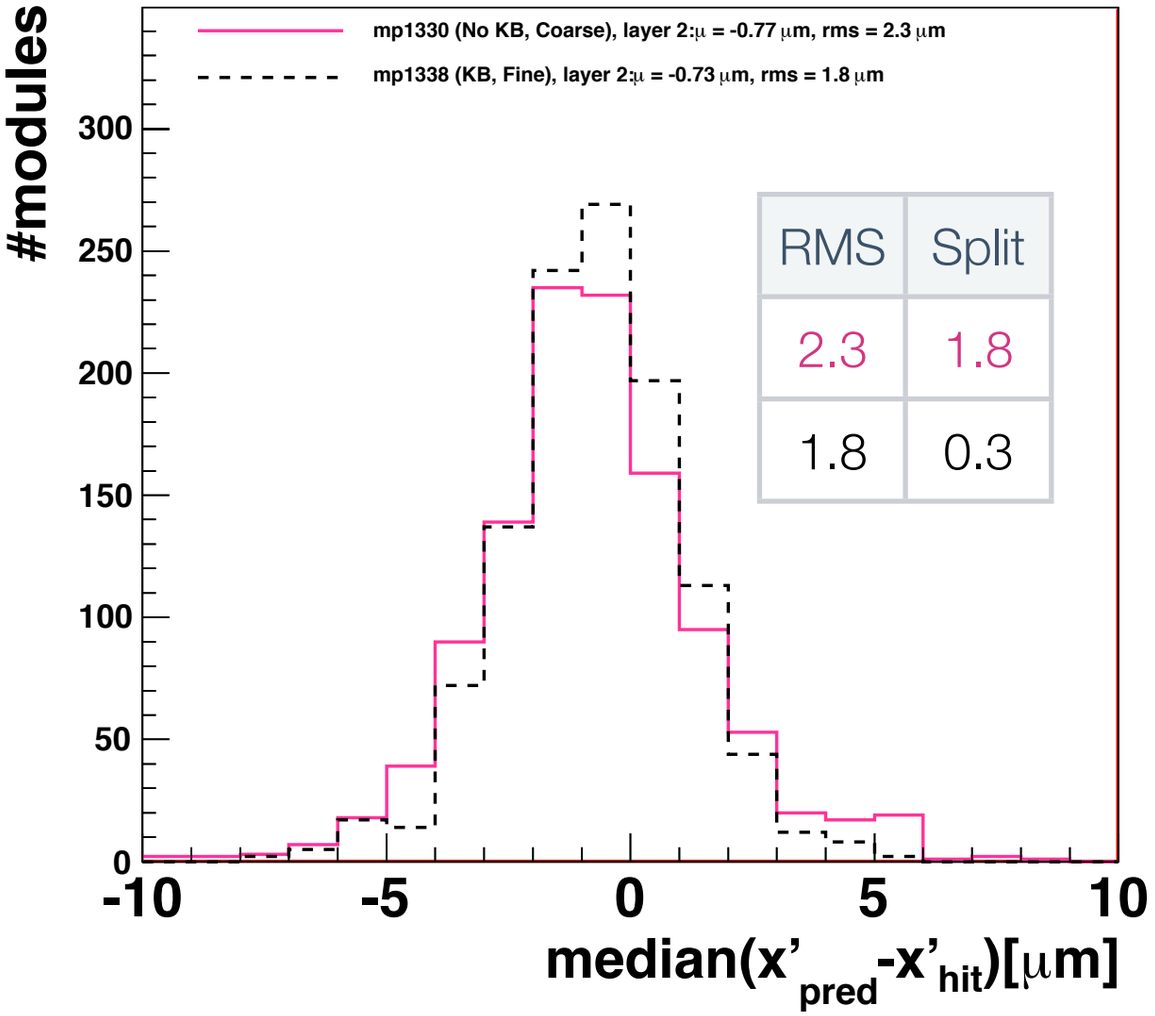


deconvolution

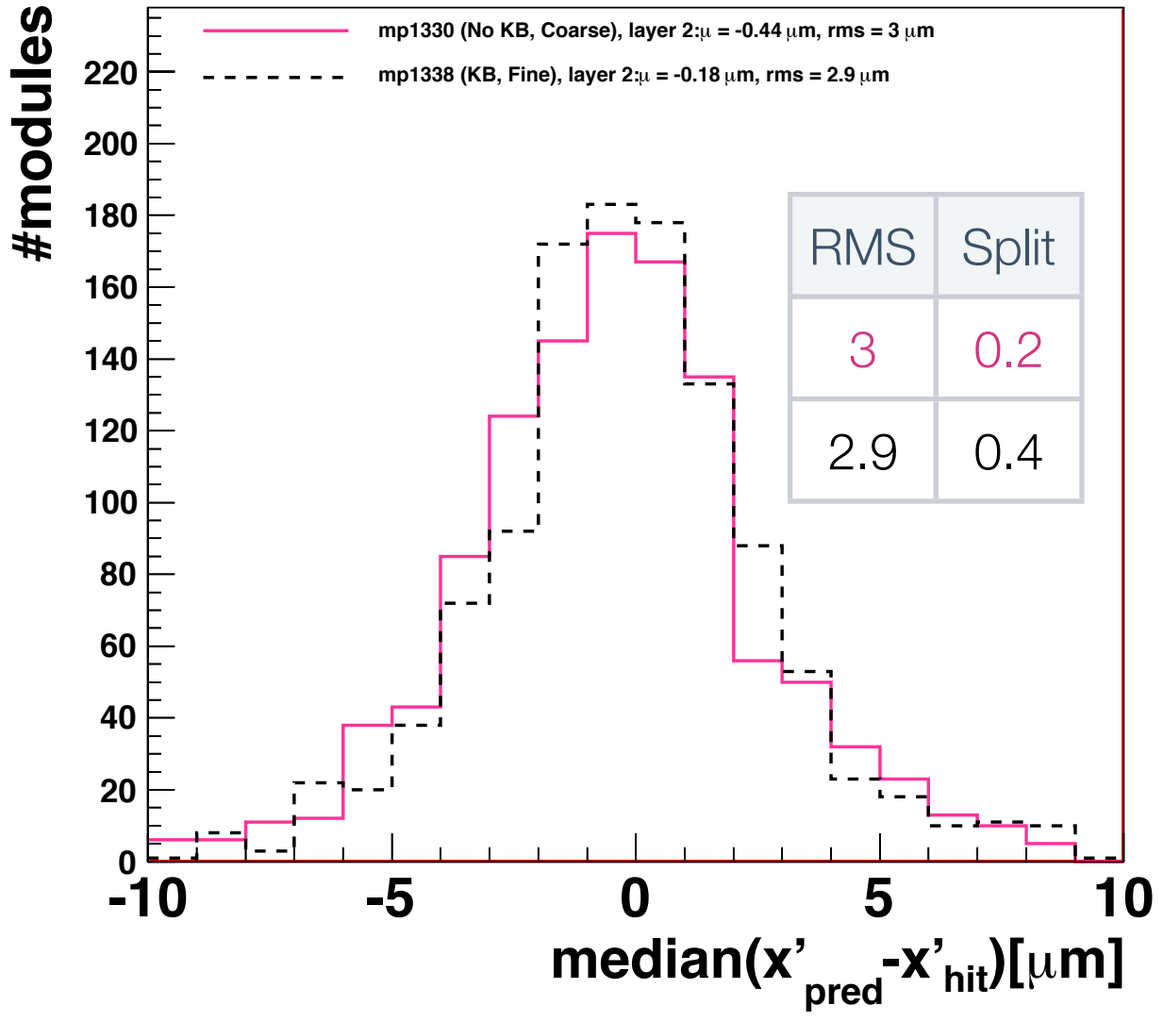
- old value

LA evolution: TOB (Layer 2) [mp1338]

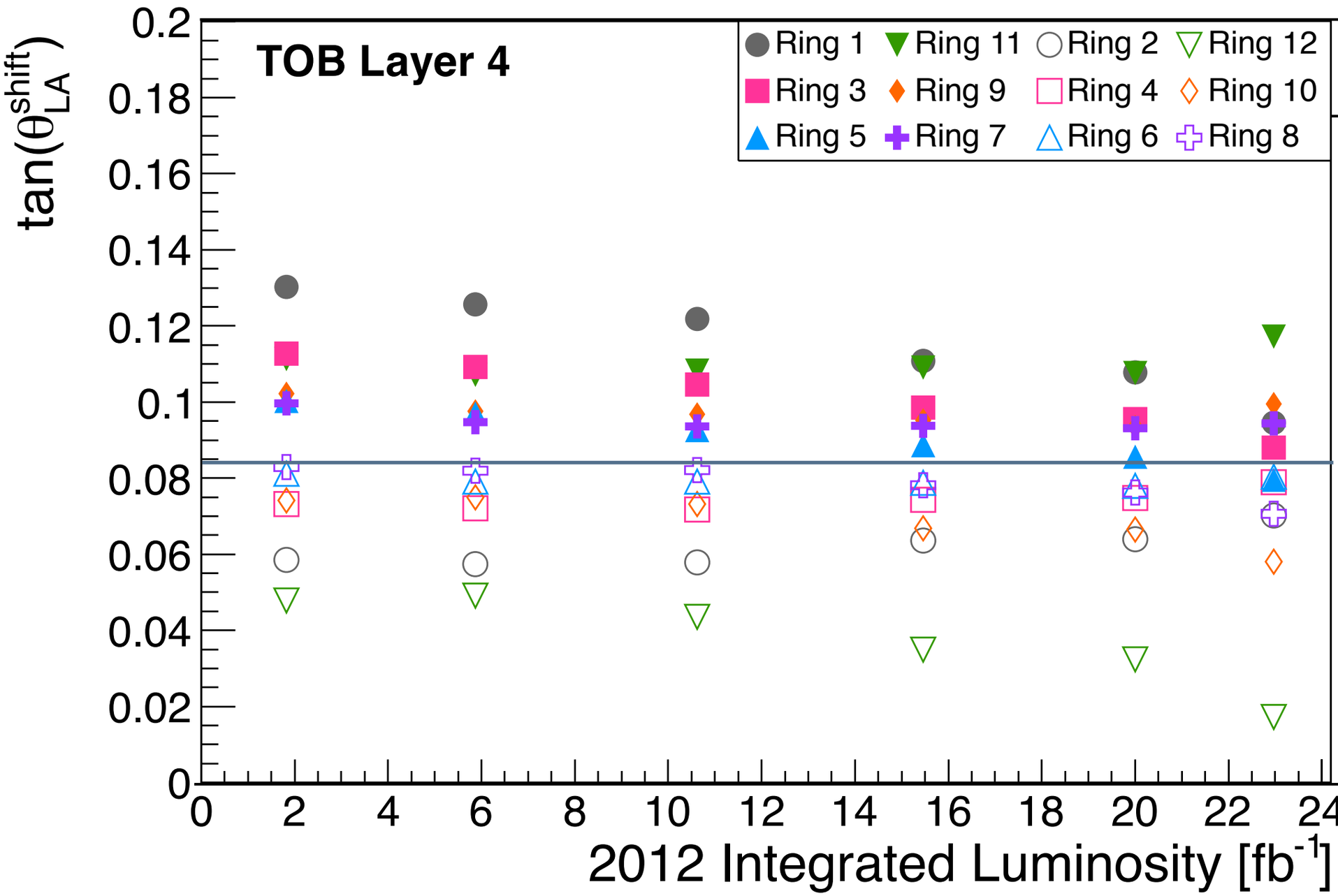
Distribution of the median of the residuals in TOB



Distribution of the median of the residuals in TOB



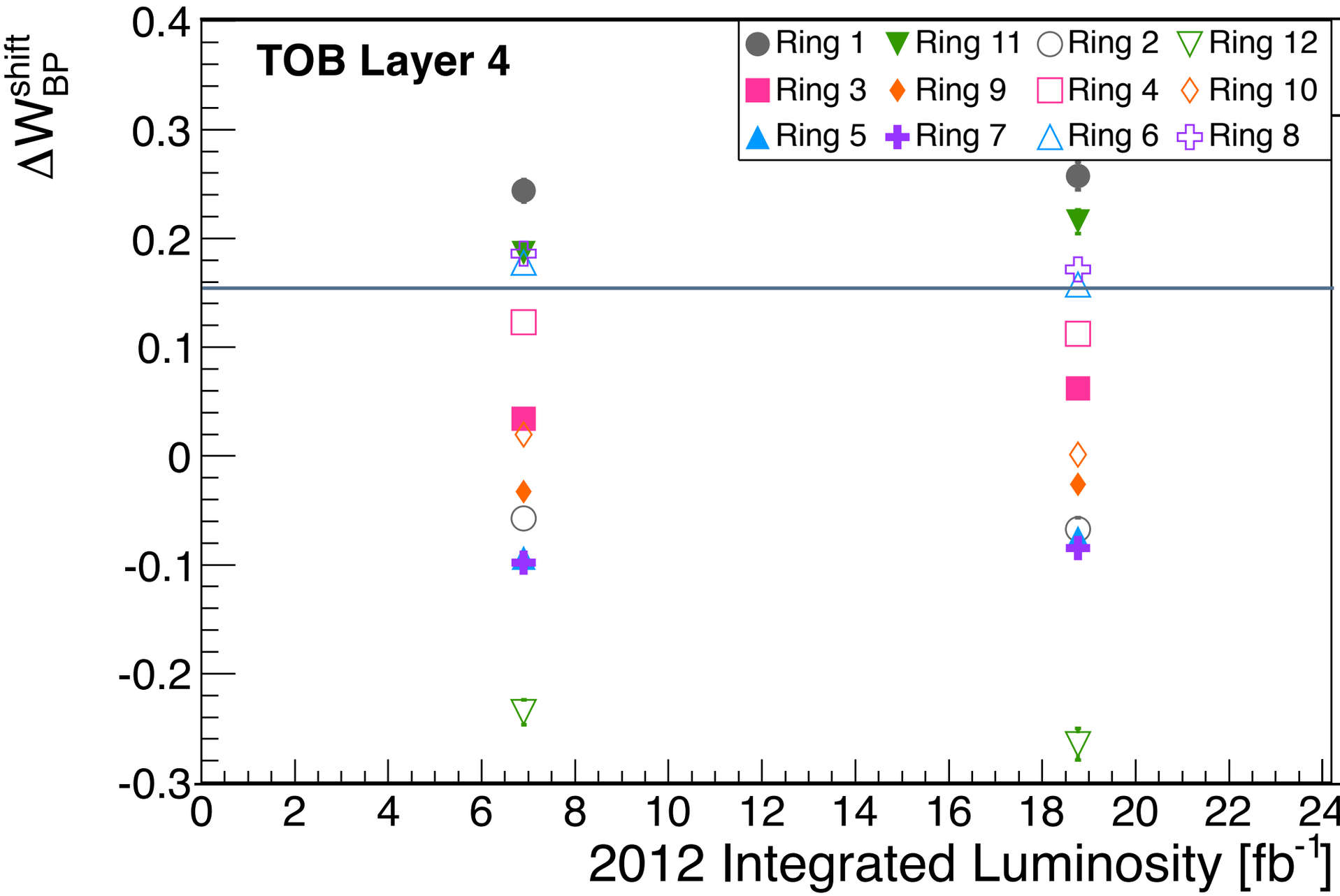
LA evolution: TOB (Layer 4) [mp1338]



deconvolution

- old value

BP evolution: TOB (Layer 4) [mp1338]

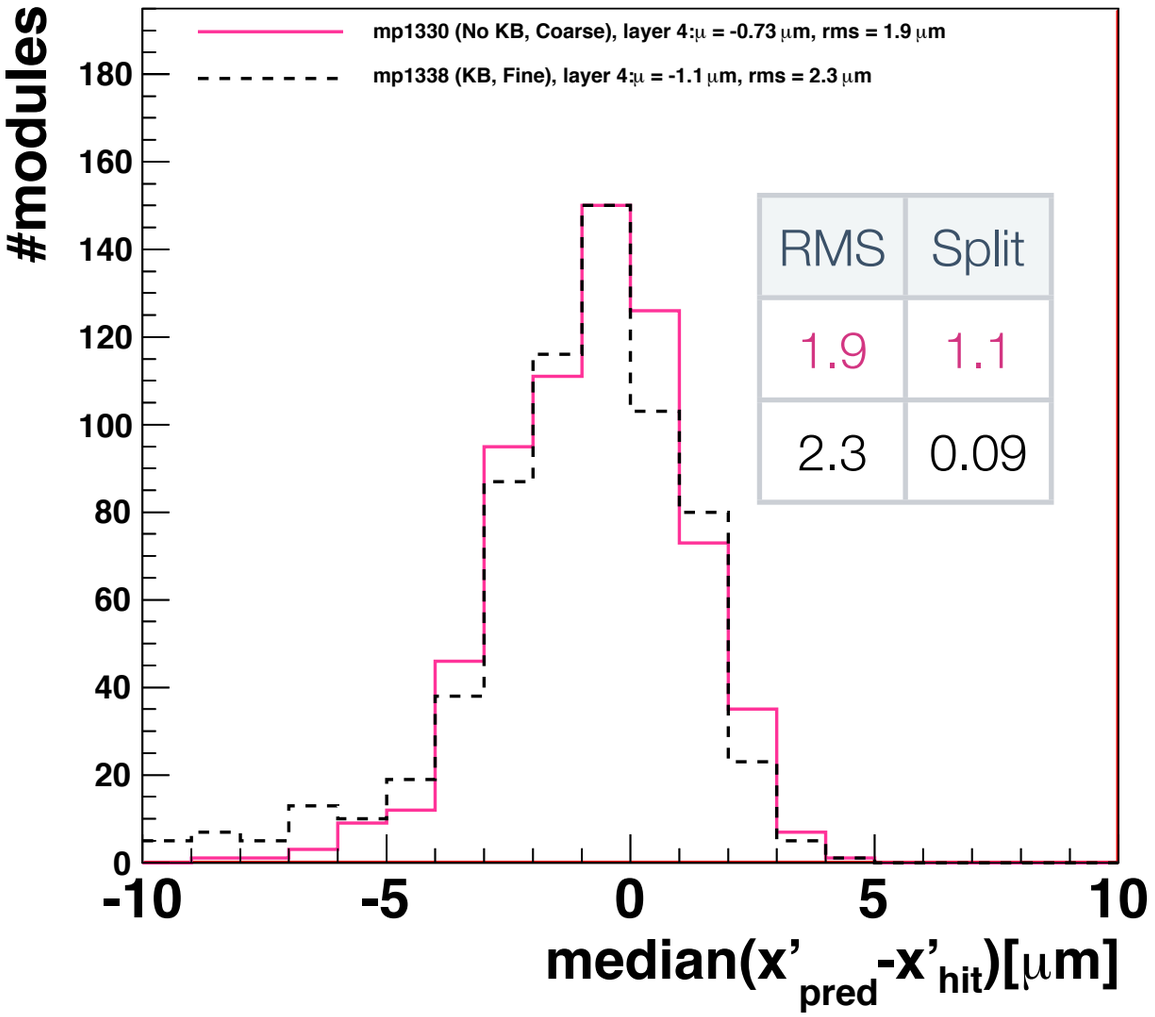


deconvolution

- old value

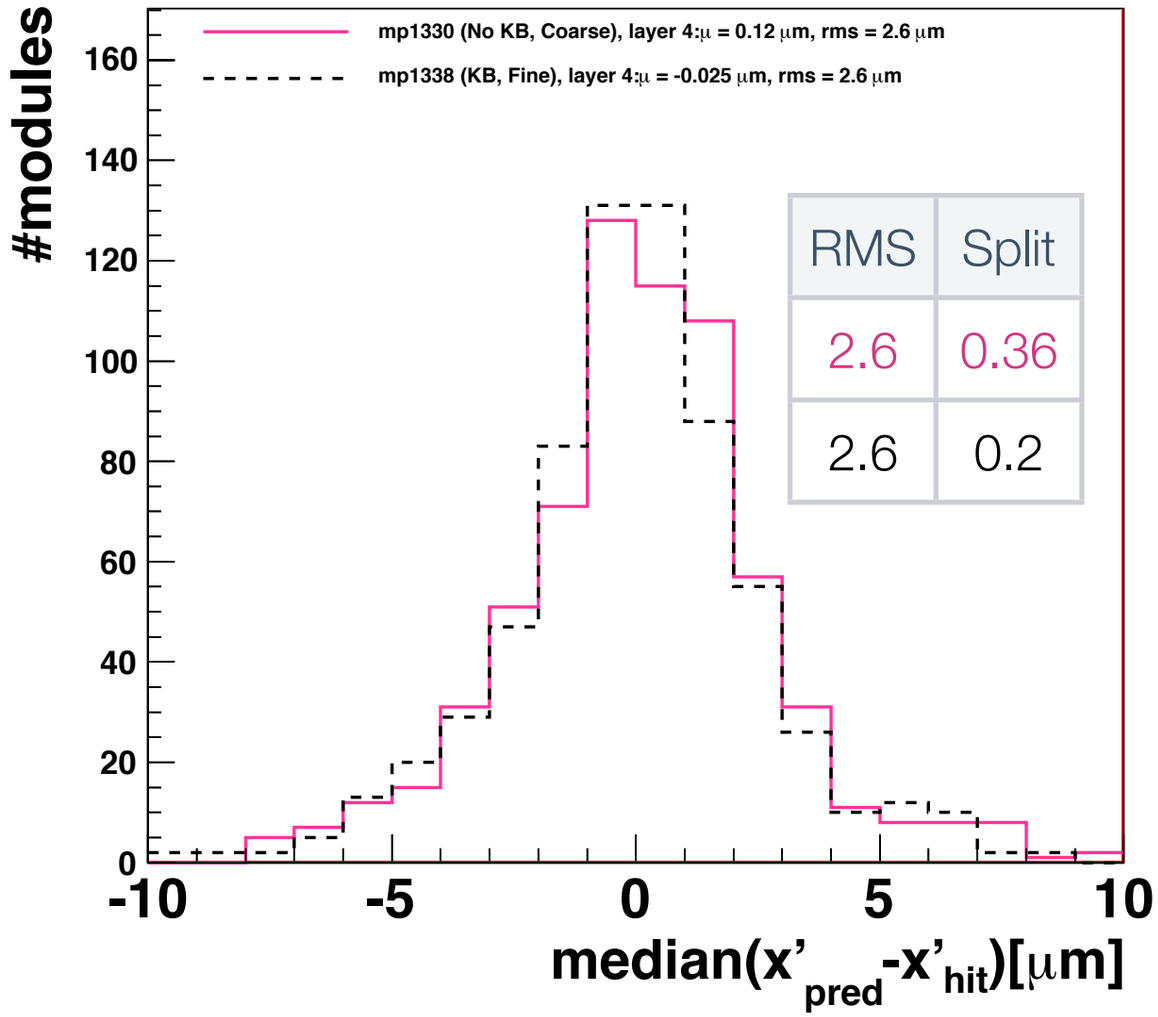
LA evolution: TOB (Layer 4) [mp1338]

Distribution of the median of the residuals in TOB



RMS	Split
1.9	1.1
2.3	0.09

Distribution of the median of the residuals in TOB



RMS	Split
2.6	0.36
2.6	0.2