

Resolutions ($\times 10^{-3}$) for $n=1.03$

Drift distance=416.5mm

Radiator	Thick.	Plexi.	$\delta\beta_{mean}$	$\delta\beta_{hit}$
Matsu. (old run)	30.	YES	$1.4\pm.1$	$2.4\pm.1$
Matsushita	30.	NO	$1.4\pm.1$	$2.6\pm.1$
Matsushita	30.	YES	$1.6\pm.4$	$2.5\pm.1$
Matsu. ordered	30.	YES	$1.5\pm.1$	$2.9\pm.1$
new Matsu.	20.	NO	$1.1\pm.1$	$2.1\pm.1$

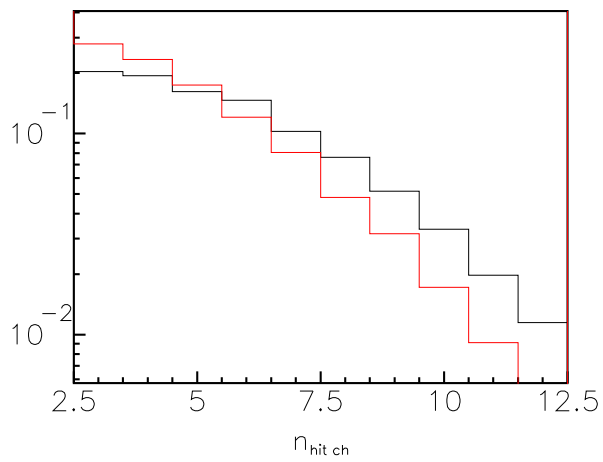
Resolutions ($\times 10^{-3}$) for $n=1.05$

Radiator	Drift	Thick.	Plexi.	$\delta\beta_{mean}$	$\delta\beta_{hit}$
Matsu. (old run)	a	20.	YES	$2.9\pm.3$	$4.7\pm.2$
Matsushita	a	20.	YES	$3.0\pm.2$	$3.9\pm.1$
Matsushita	b	20.	NO	$3.3\pm.1$	$4.9\pm.1$
Matsushita	b	30.	YES	$3.4\pm.1$	$4.3\pm.1$
Matsushita	b	30.	NO	$3.0\pm.1$	$4.3\pm.1$
Matsu. ordered & restricted	a	20.	YES	$2.0\pm.1$	$3.2\pm.1$
new Matsushita (1tile)	a	20.	NO	$1.5\pm.1$	$2.9\pm.1$

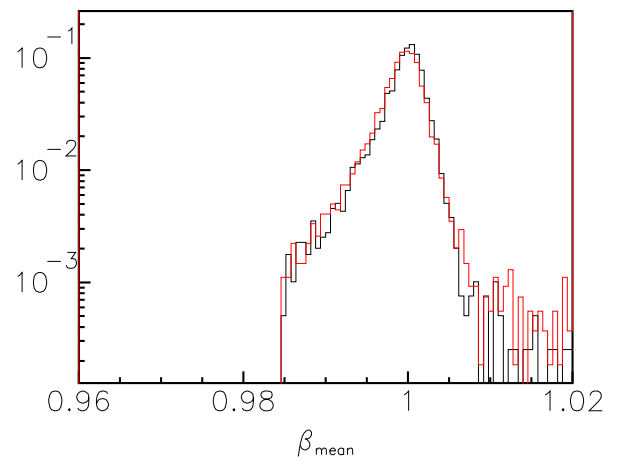
Drift distance: a=416.5mm b=326.5mm

Influence of plexiglass foil

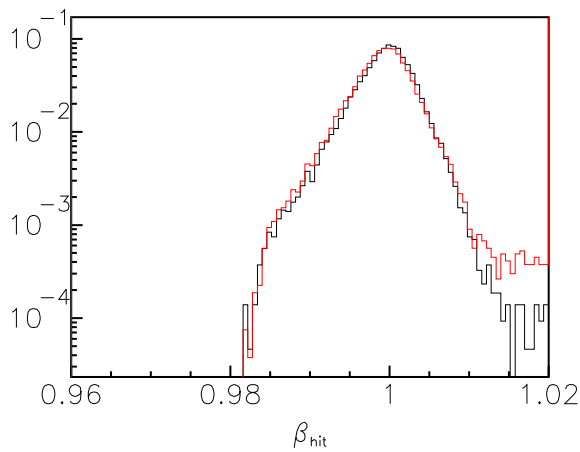
$n=1.03$



Hit per ring



Reconstructed mean β



β per hit

no significant resolution loss

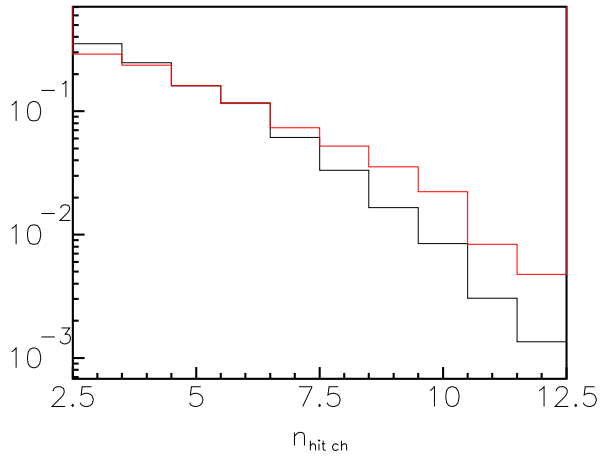
photon gain: 4.7 \rightarrow 5.2

WITHOUT FOIL

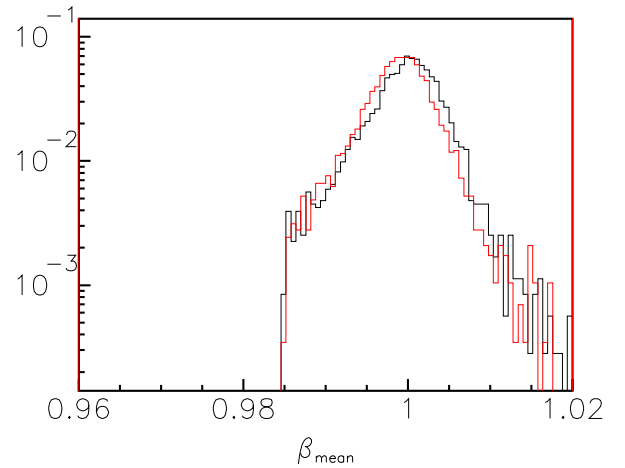
WITH FOIL

Influence of radiator thickness

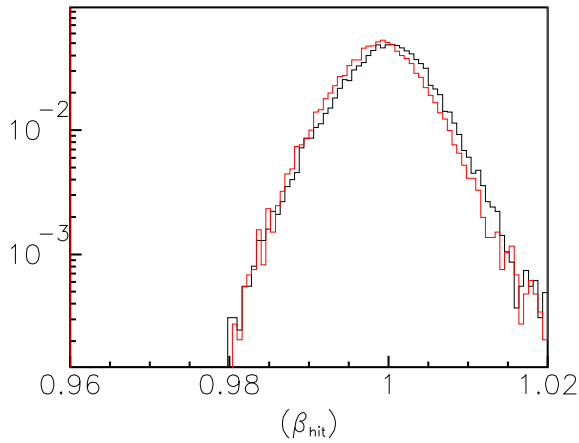
$n=1.05$



Hit per ring



Reconstructed mean β



β per hit

20mm

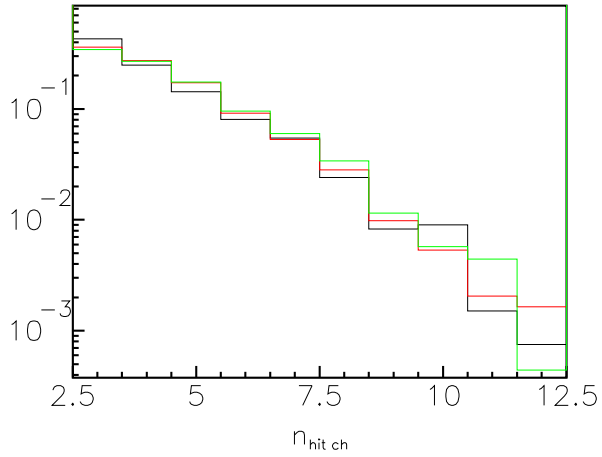
30mm

no significant resolution change

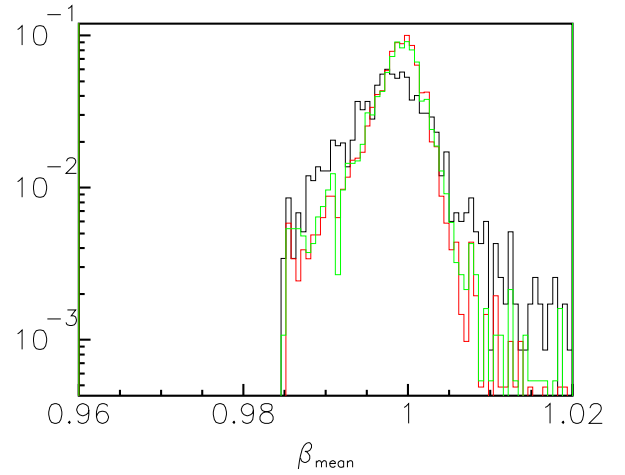
photon gain: 4.5 \rightarrow 4.9

Influence of optical index homogeneity

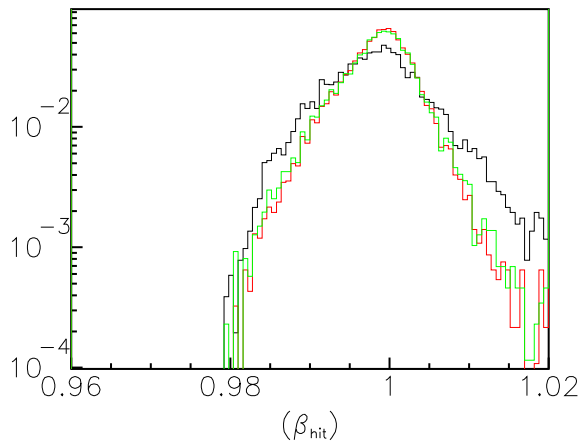
$n=1.05$



Hit per ring



Reconstructed mean β



β per hit

random
gradient ordering
homogeneous area

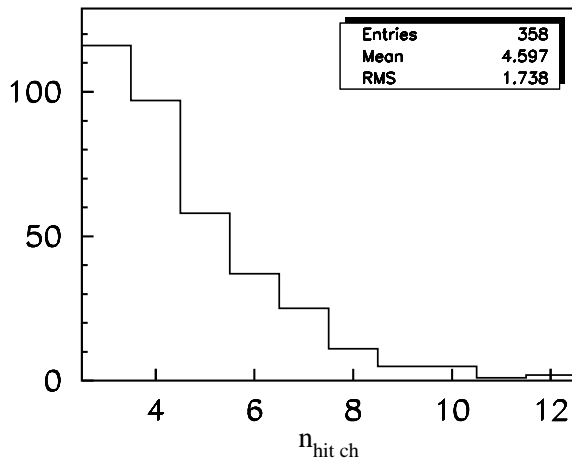
Resolution improvement

$$\beta_{mean}: 2.9 \rightarrow 2.0$$

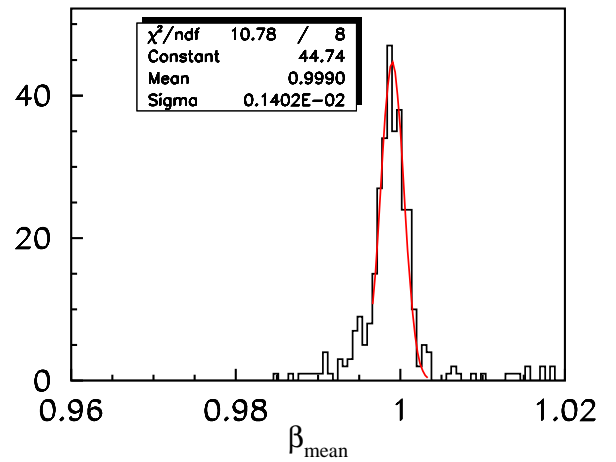
$$\beta_{hit}: 3.9 \rightarrow 3.2$$

Novosibirsk AGL 1.0225

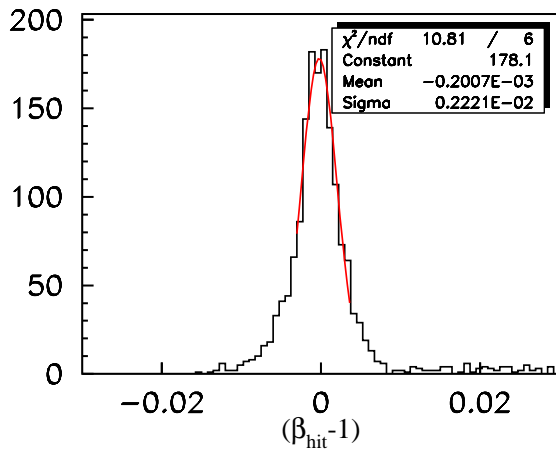
Drift: 41.6cm Thickness: 25mm Plexi: NO



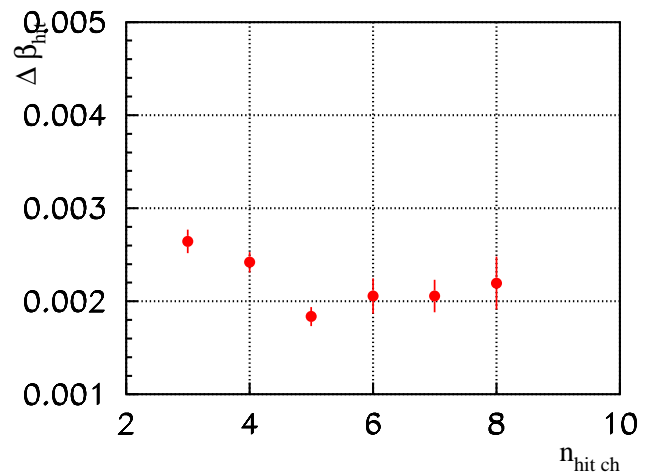
Hit per ring



Reconstructed mean β



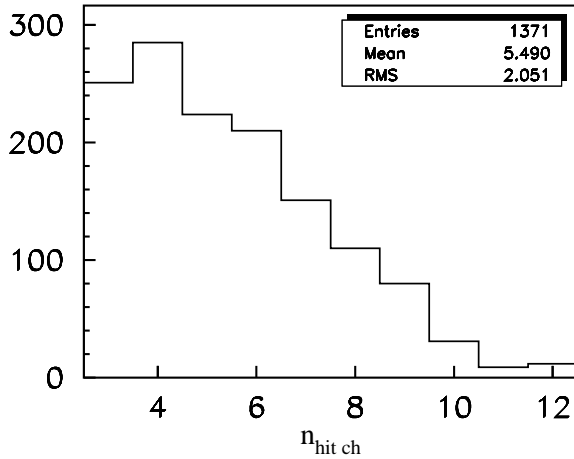
β per hit



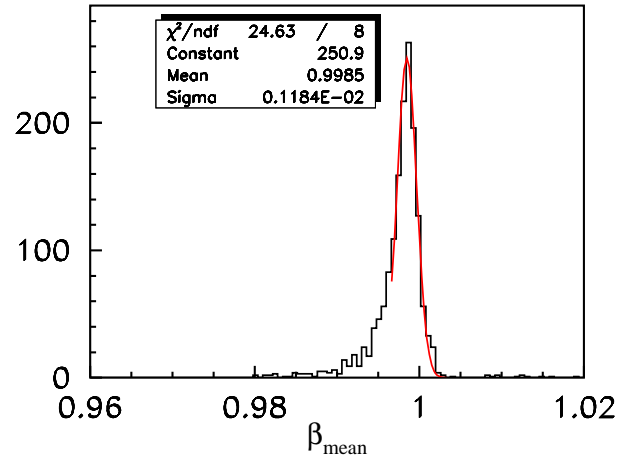
$$\sqrt{\frac{n_{hit}}{n_{hit}-1}} (\beta_{hit} - \beta_{mean}) \text{ vs } n_{hit}$$

New Matsushita AGL 1.03

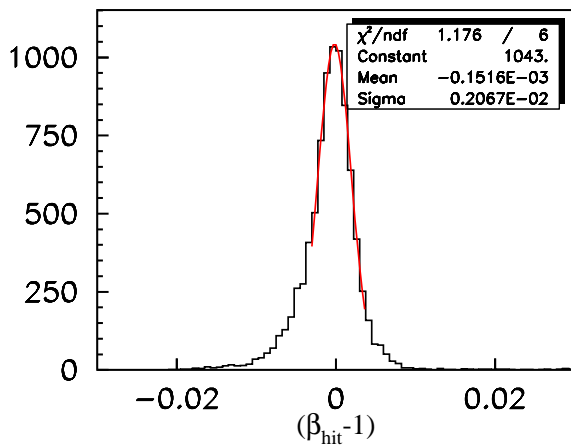
Drift: 41.6cm Thickness: 20mm Plexi: NO



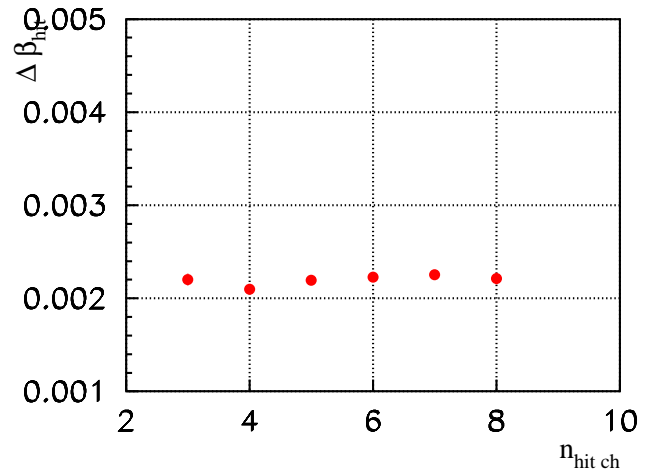
Hit per ring



Reconstructed mean β



β per hit



$$\sqrt{\frac{n_{hit}}{n_{hit}-1}} (\beta_{hit} - \beta_{mean}) \text{ vs } n_{hit}$$

Resolution improvement

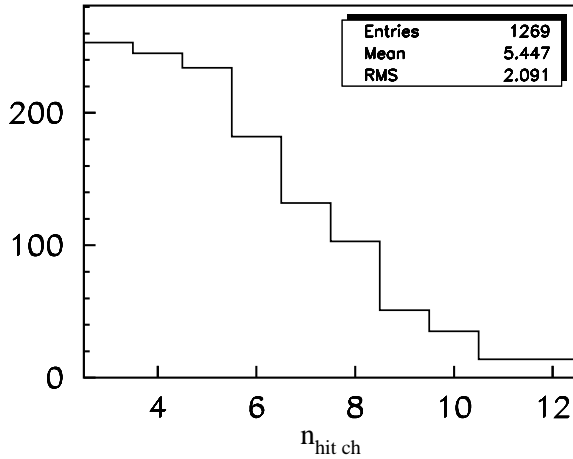
$$\beta_{mean}: 1.4 \rightarrow 1.2$$

$$\beta_{hit}: 2.6 \rightarrow 2.1$$

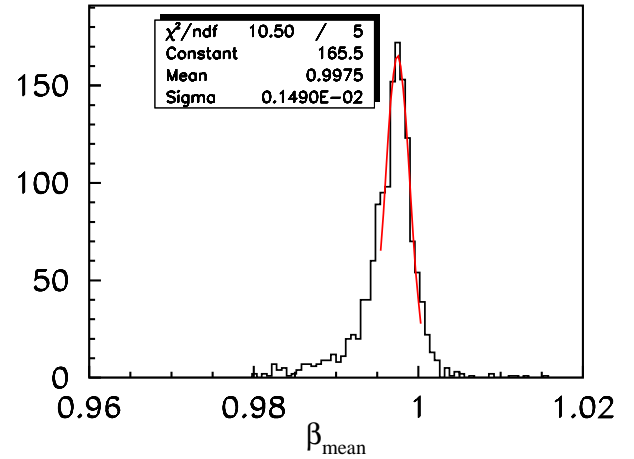
$$N_{hit}: 5.5 \rightarrow 5.5$$

New Matsushita AGL 1.05

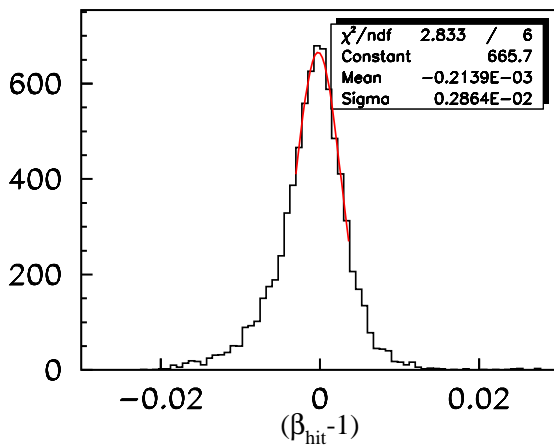
Drift: 41.6cm Thickness: 20mm Plexi: NO



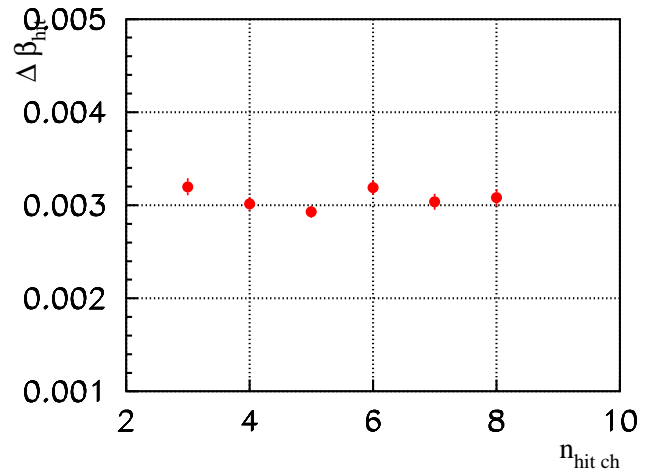
Hit per ring



Reconstructed mean β



β per hit



$$\sqrt{\frac{n_{hit}}{n_{hit}-1}} (\beta_{hit} - \beta_{mean}) \text{ vs } n_{hit}$$

Resolution improvement

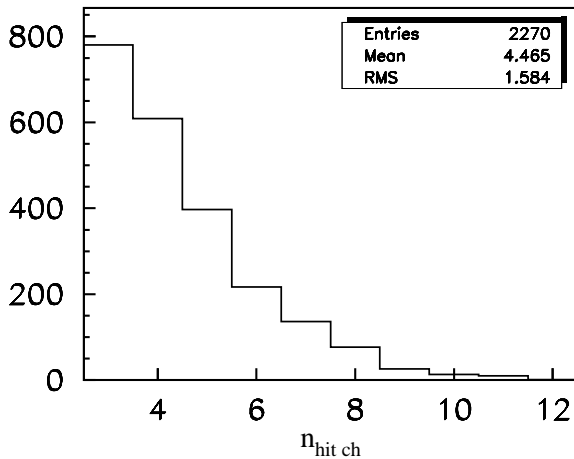
$$\beta_{mean}: 2.0 \rightarrow 1.5$$

$$\beta_{hit}: 3.2 \rightarrow 2.9$$

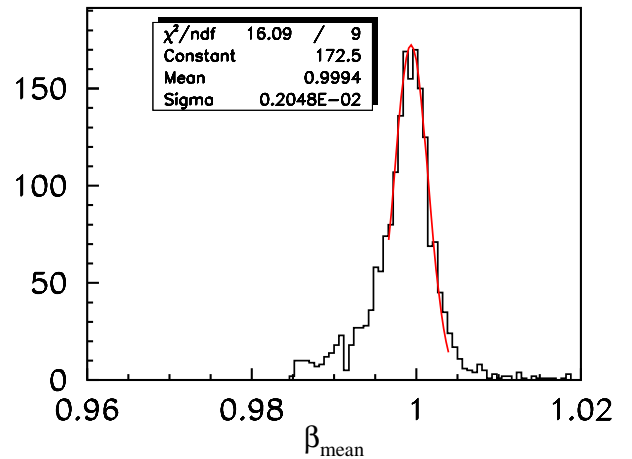
$$N_{hit}: 4.5 \rightarrow 5.4$$

AGL 1.05

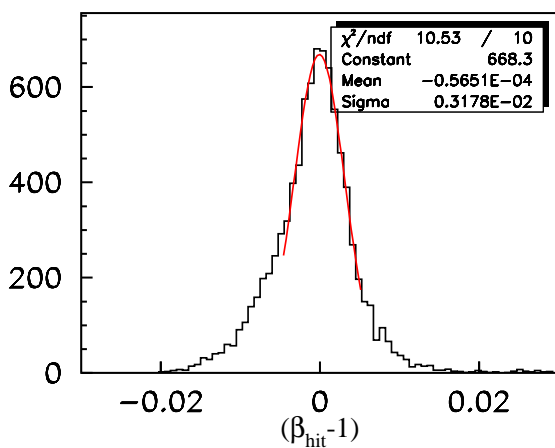
RUN 52 (tiles ordered & “center restricted” radiator)
Drift: 41.6cm Thickness: 20mm Plexi: YES



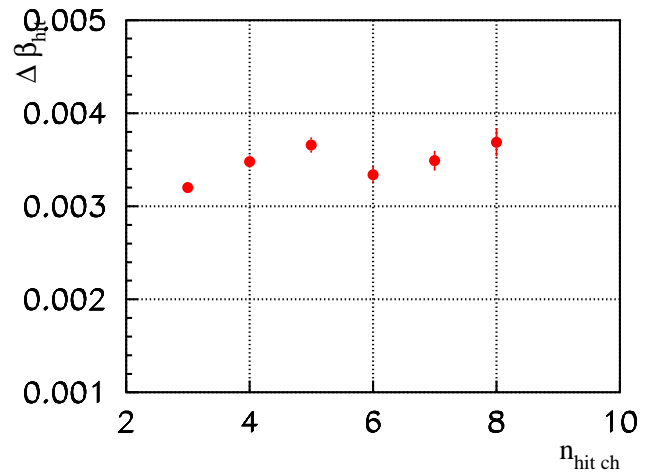
Hit per ring



Reconstructed mean β



β per hit

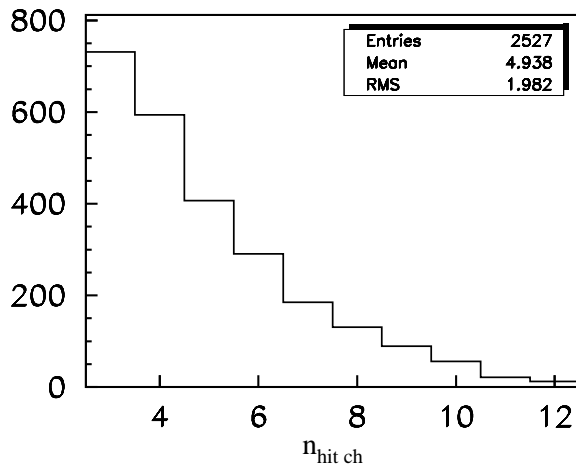


$$\sqrt{\frac{n_{hit}}{n_{hit}-1}} (\beta_{hit} - \beta_{mean}) \text{ vs } n_{hit}$$

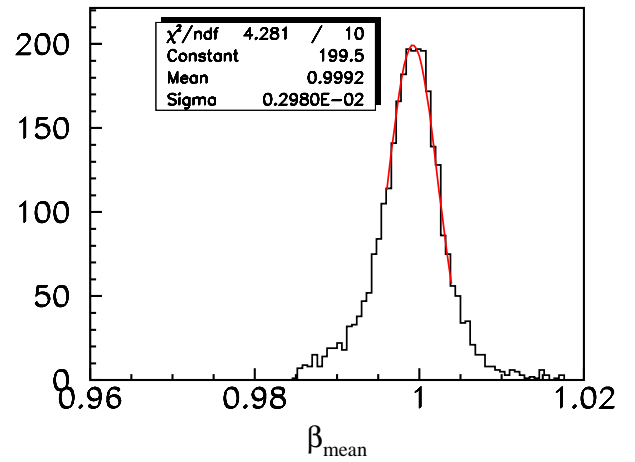
AGL 1.05

RUN 24-25

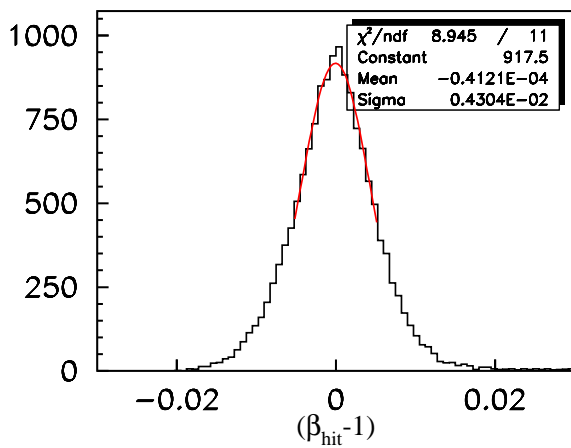
Drift: 32.6cm Thickness: 30mm Plexi: NO



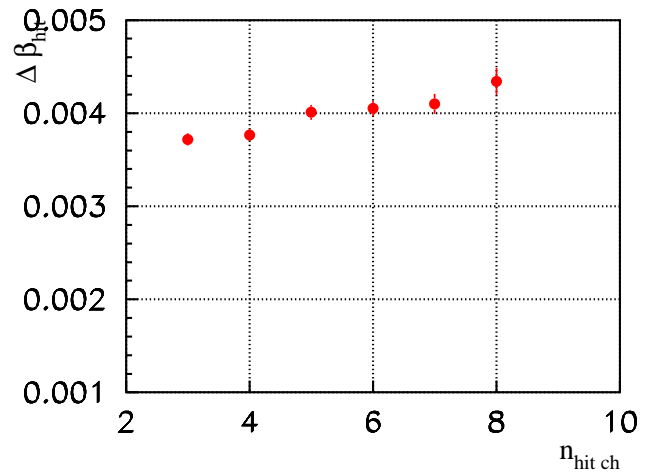
Hit per ring



Reconstructed mean β



β per hit

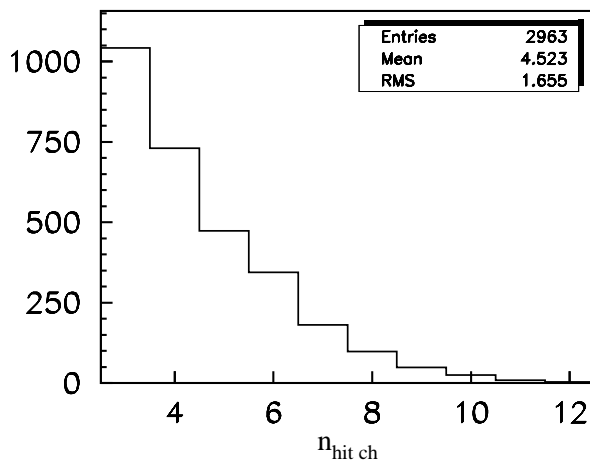


$$\sqrt{\frac{n_{hit}}{n_{hit}-1}} (\beta_{hit} - \beta_{mean}) \text{ vs } n_{hit}$$

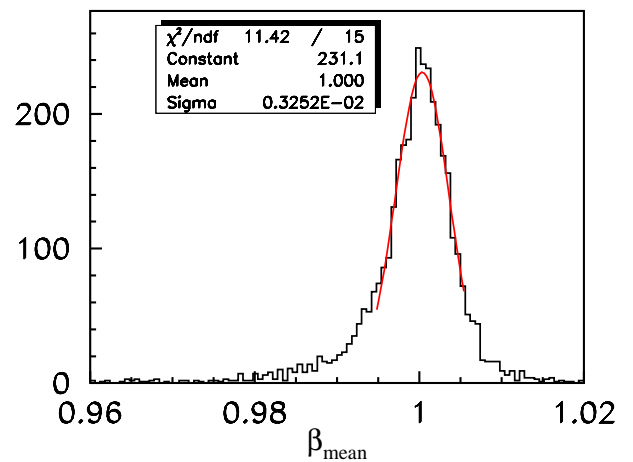
AGL 1.05

RUN 15-16

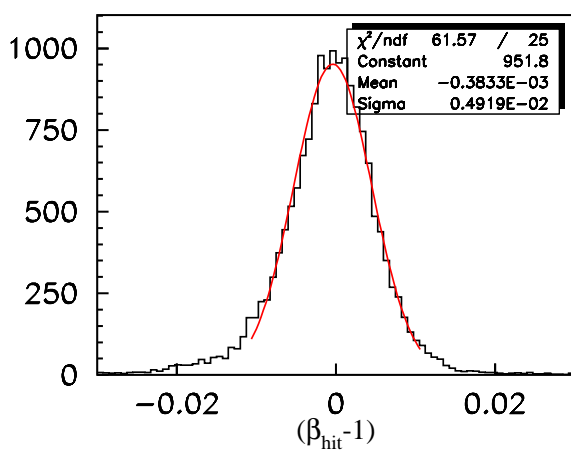
Drift: 32.6cm Thickness: 20mm Plexi: NO



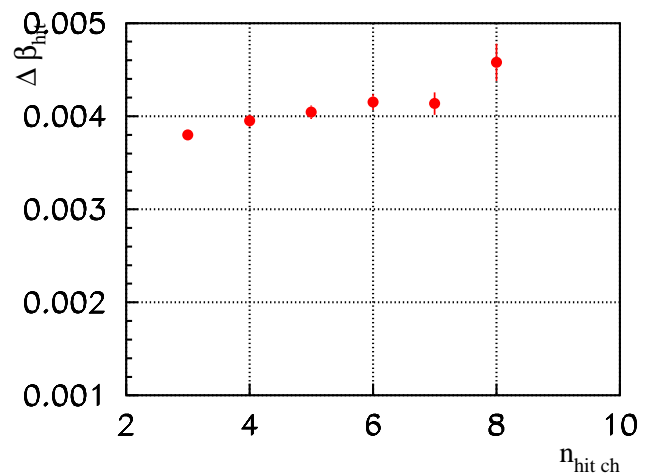
Hit per ring



Reconstructed mean β



β per hit



$$\sqrt{\frac{n_{hit}}{n_{hit}-1}}(\beta_{hit} - \beta_{mean}) \text{ vs } n_{hit}$$