

Фитирование треков в GEM, Minuit, Рунге-Кутт

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Minuit, FCN, Рунге-Кутт

- `BmnTrackExtrapolator::RKTrans()` - реализация в `bmnroot`

Численное решение уравнения движения частицы в магнитном поле

До 60 см использует метод Рунге-Кутта 4 порядка, а после – 5 порядка

FCSN, свободные параметры

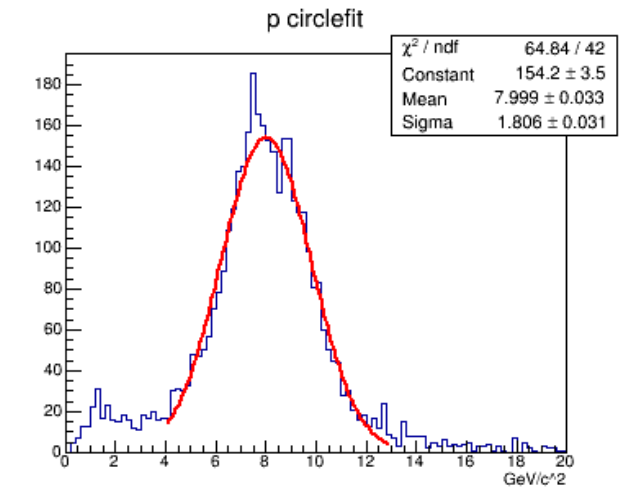
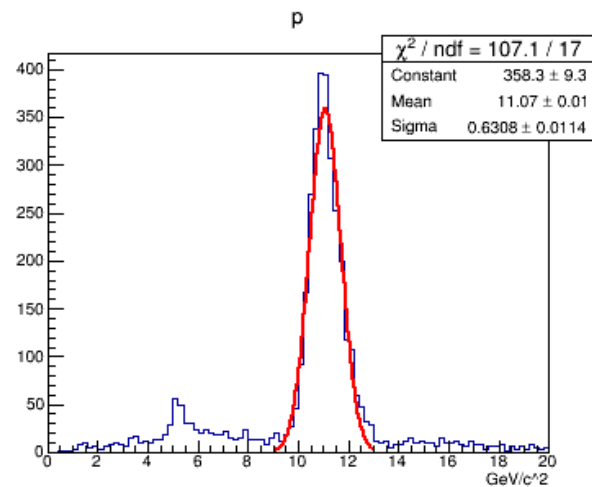
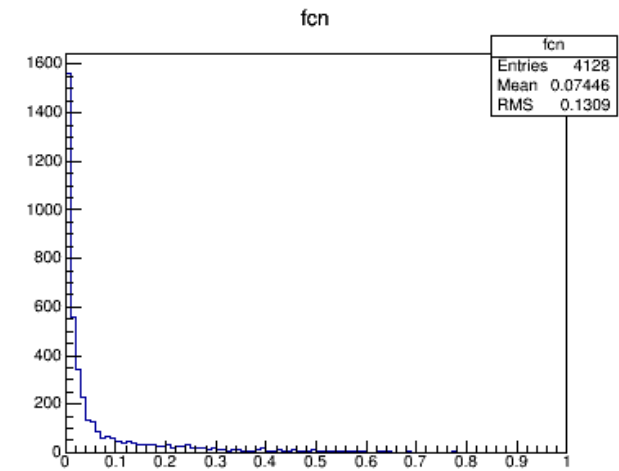
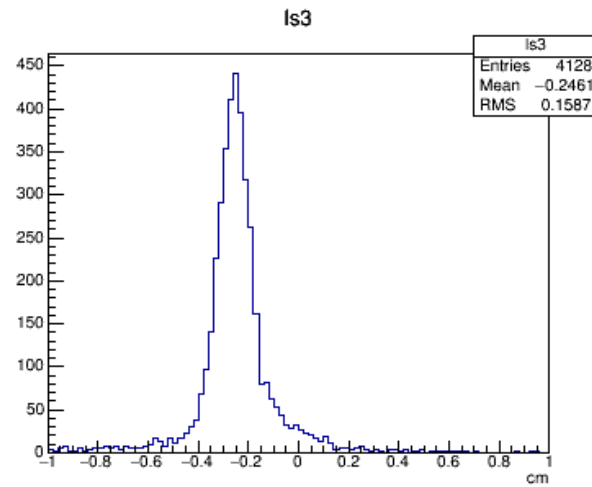
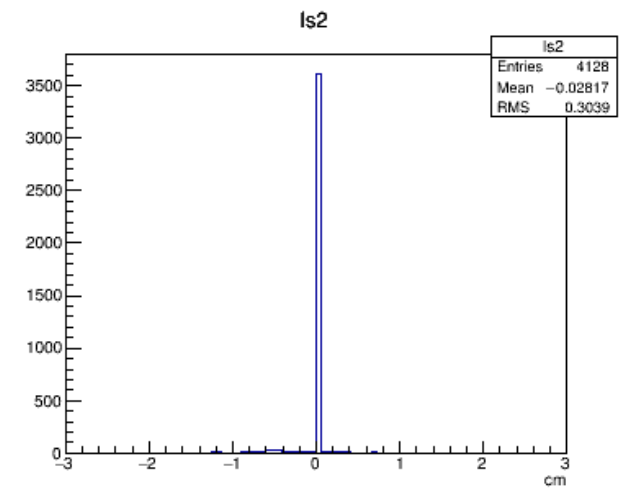
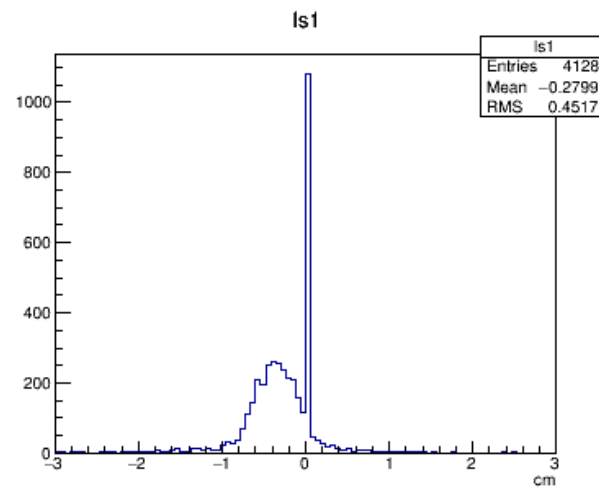
- Вектор исходного состояния + 3 лоренцовских сдвига
- Вектор исходного состояния = (x, y, T_x, T_y, Q_p) при $z = 0$
- 3 лоренцовских сдвига = для 1-ой станции, для 2-ой станции, для остальных станций

FCSN, минимизируемое значение

$$\sum_{hits} \left(x_{mean} - x_{hits} \right)^2 + \left(y_{mean} - y_{hits} \right)^2 * \tan(15^\circ)^2 / 2$$

- Суммирование по всем хитам в треке
- Квадрат резидуала по x с весом 1
- Квадрат резидуала по y с весом < 1

Run 813 PK

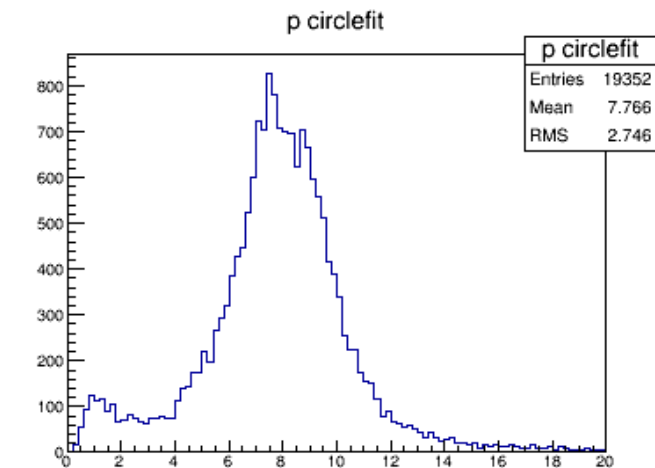
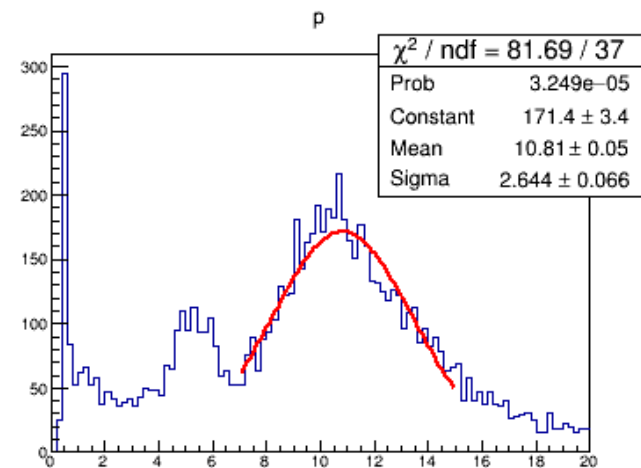
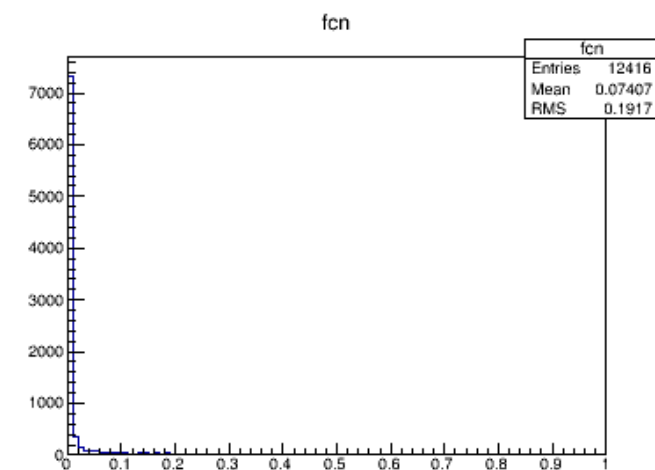
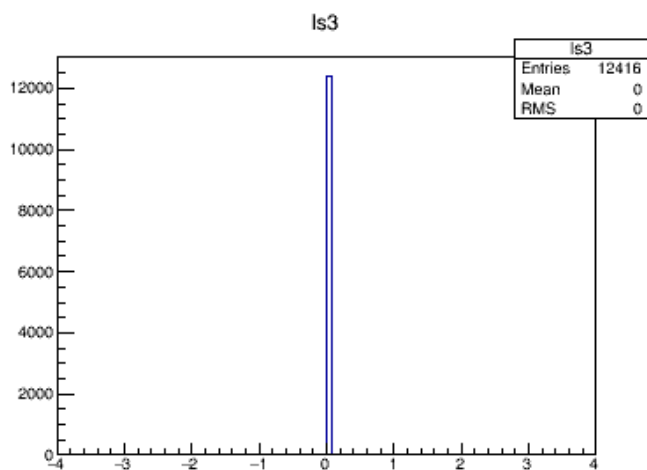
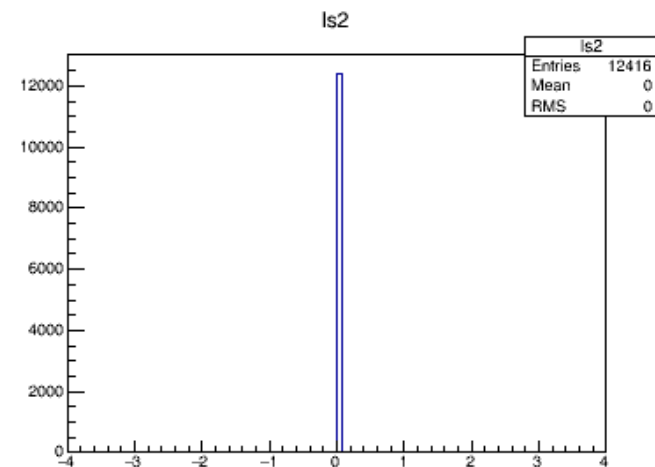
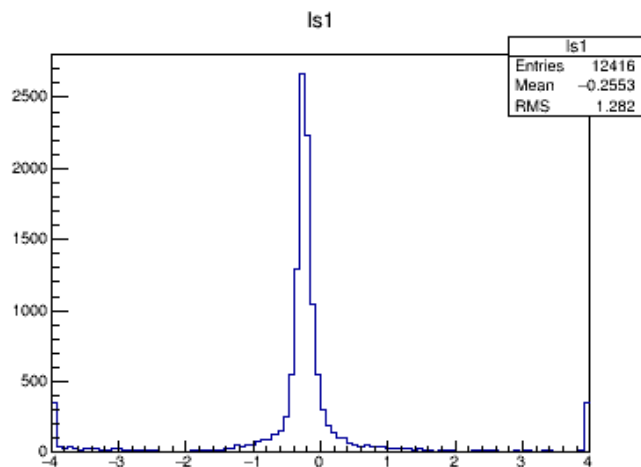


Minuit, FCN, окружность

$$\sum_{hits} \left(R - \sqrt{(x_{hits} - x_0 \pm ls)^2 + (z_{hits} - z_0)^2} \right)^2$$

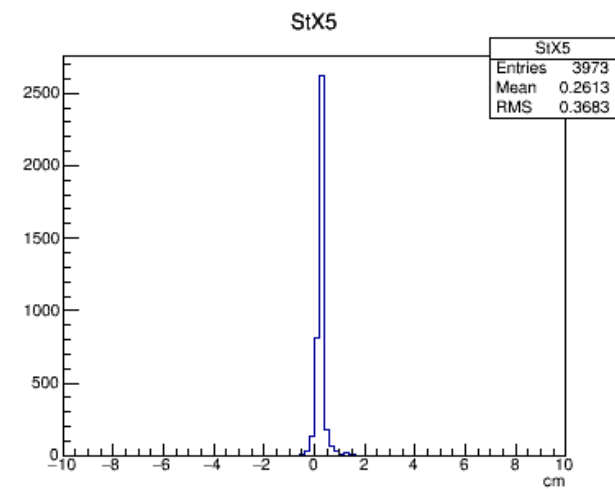
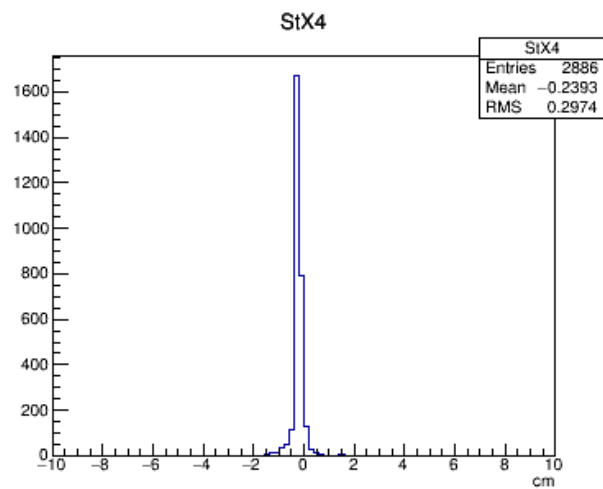
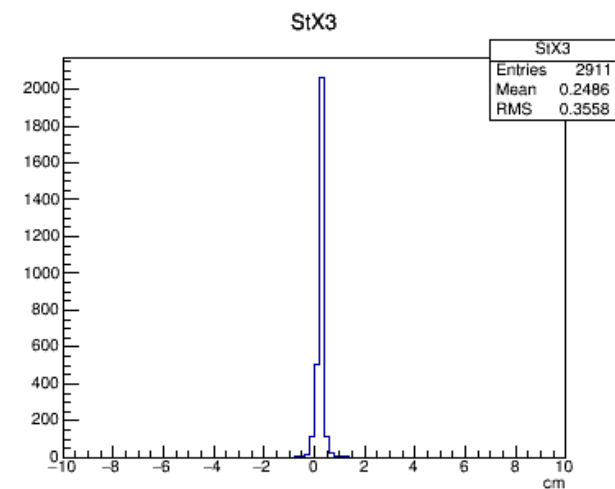
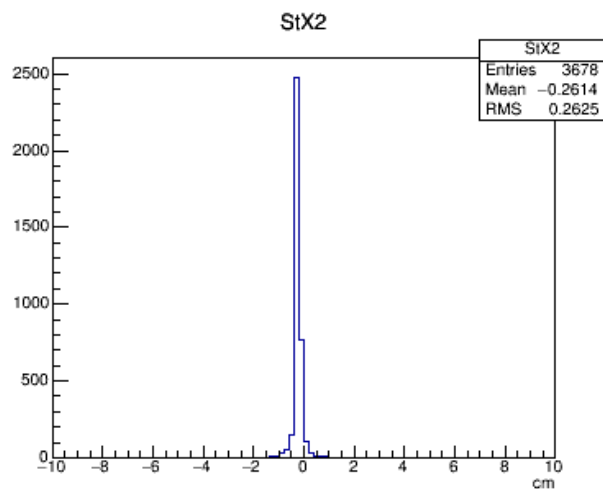
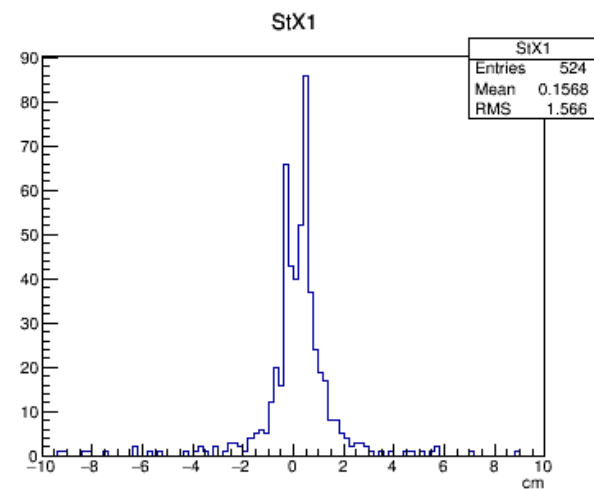
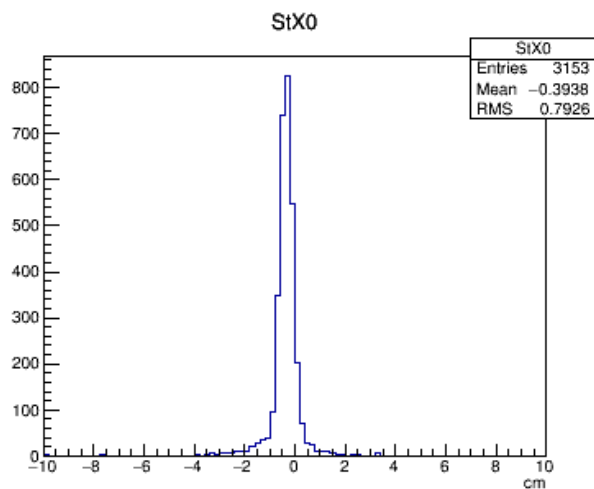
- Суммирование по всем хитам в треке
Свободные параметры
- R – радиус окружности
- (z0, x0) – координаты центра окружности
- ls – лоренцовский сдвиг, одинаковый для всех GEM-плоскостей

Run 813 окружность



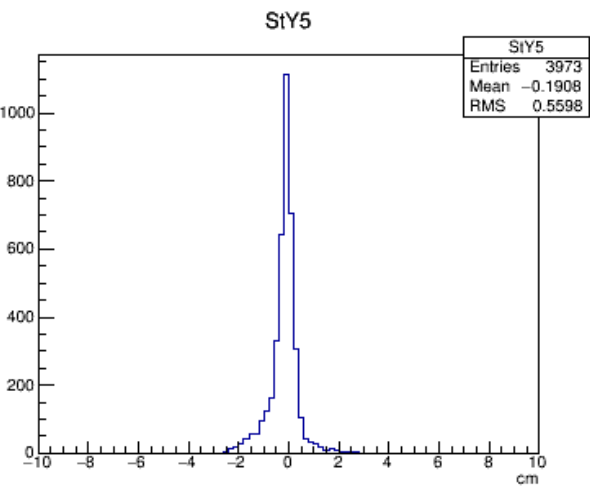
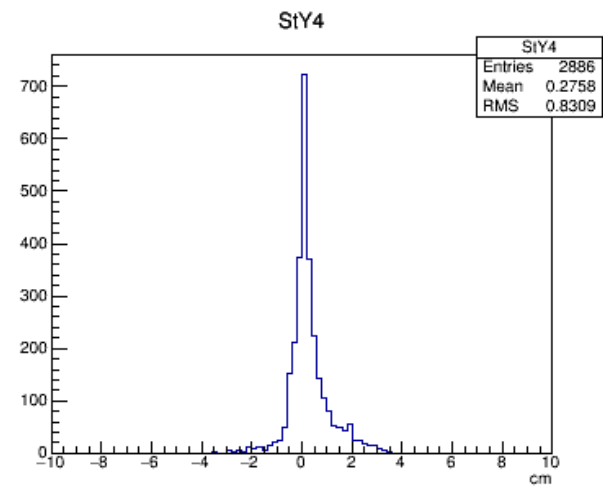
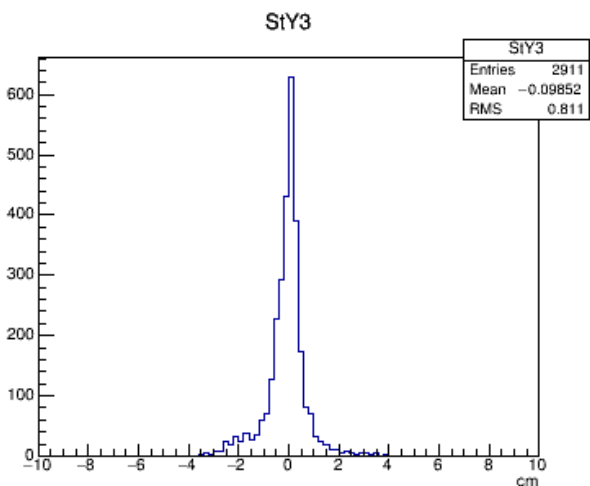
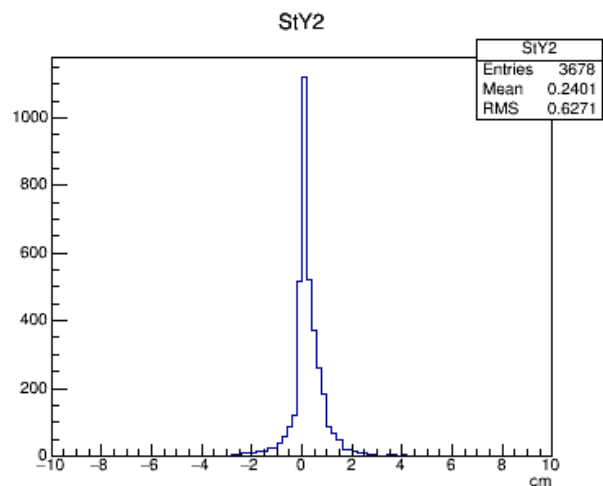
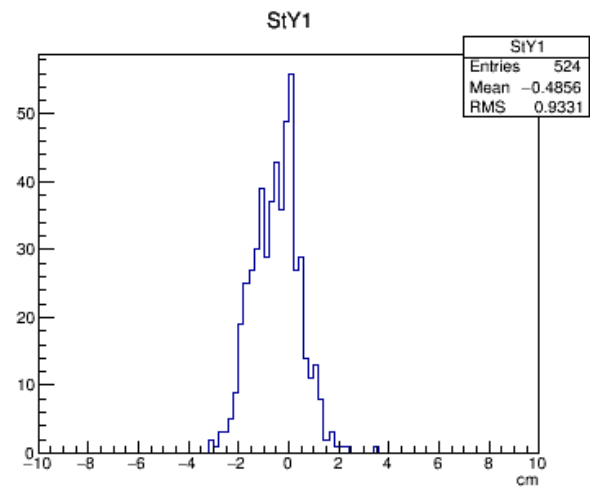
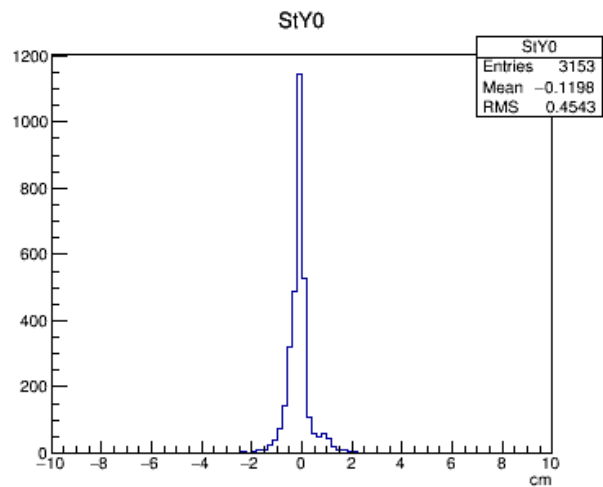
Run 813

X резидуалы



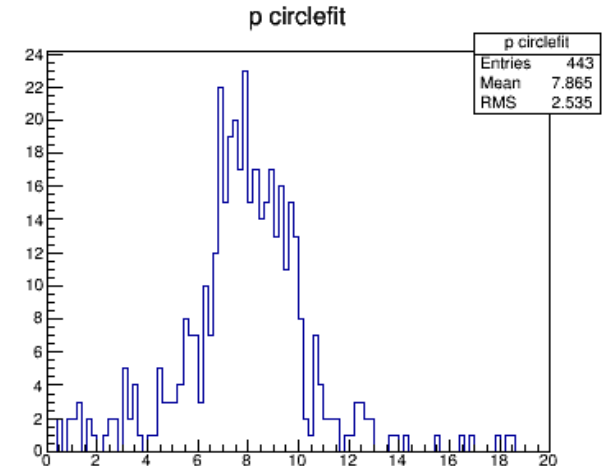
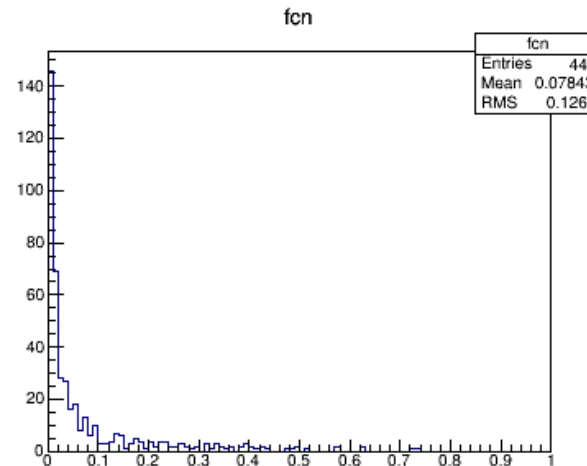
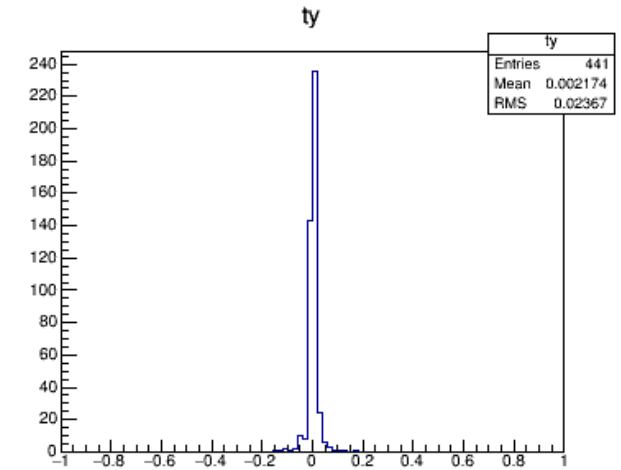
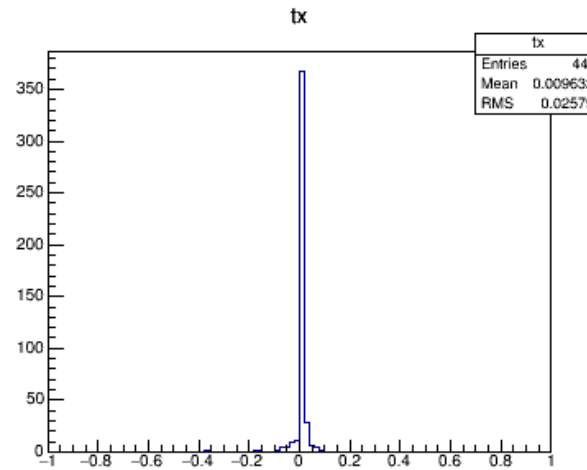
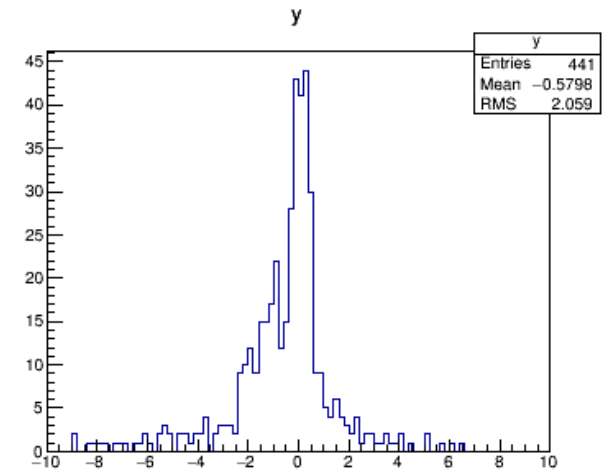
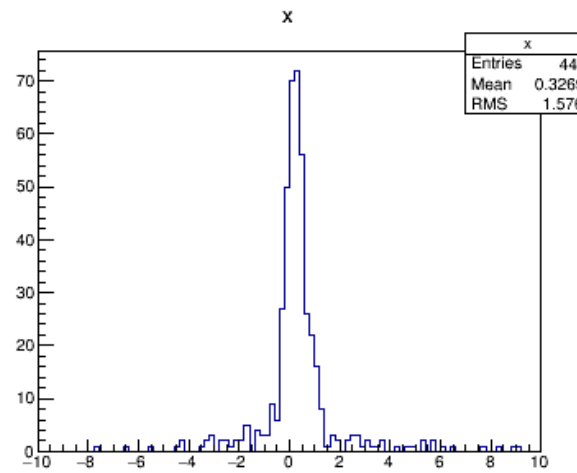
Run 813

Y резидуалы

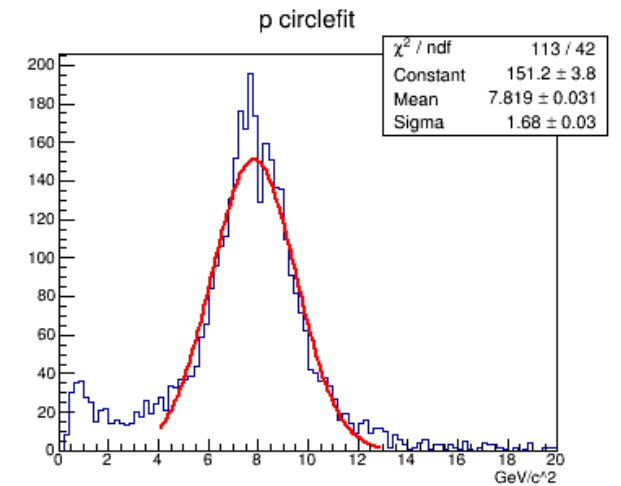
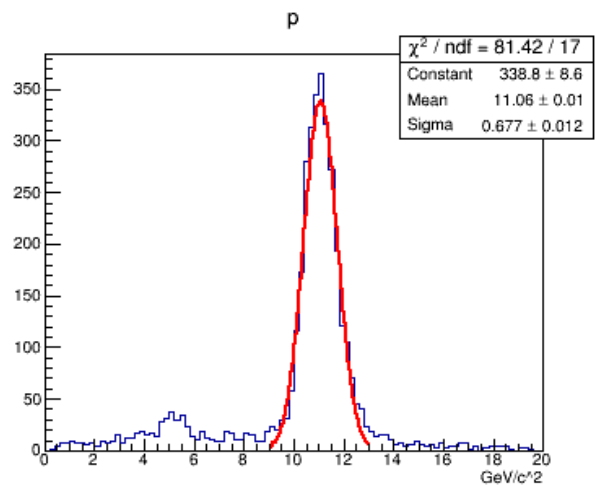
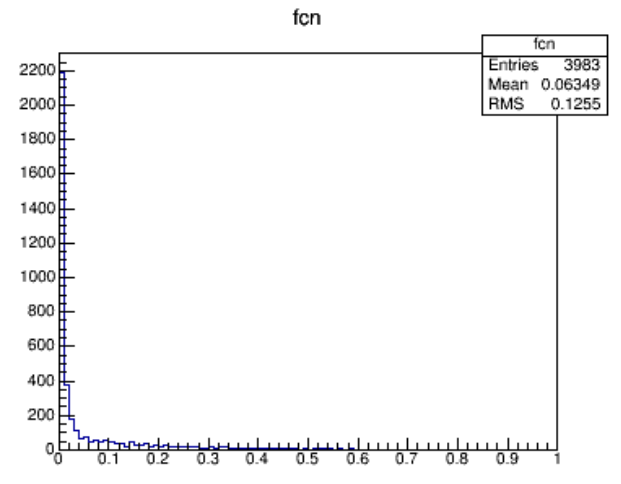
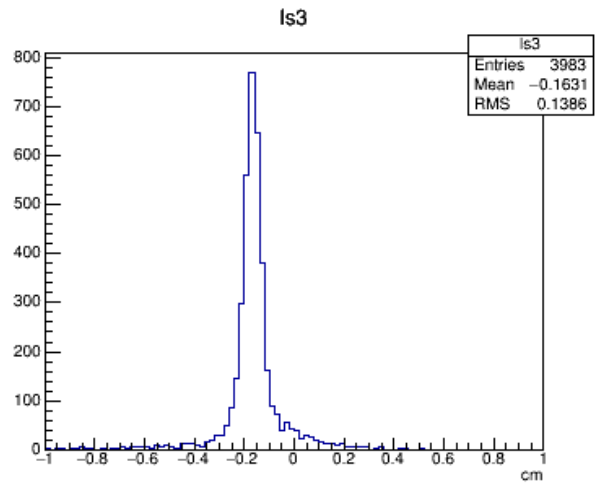
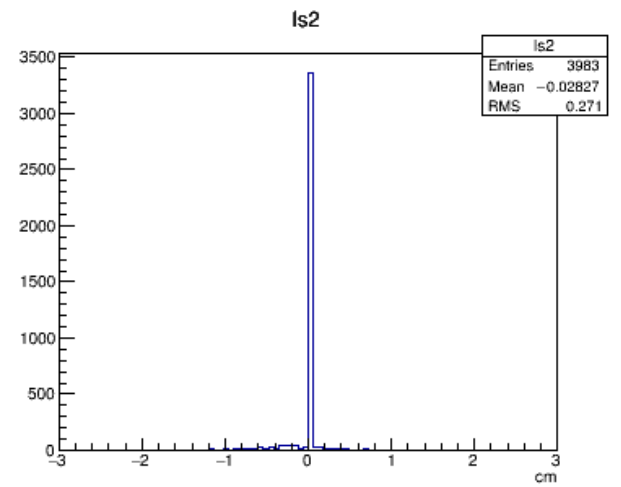
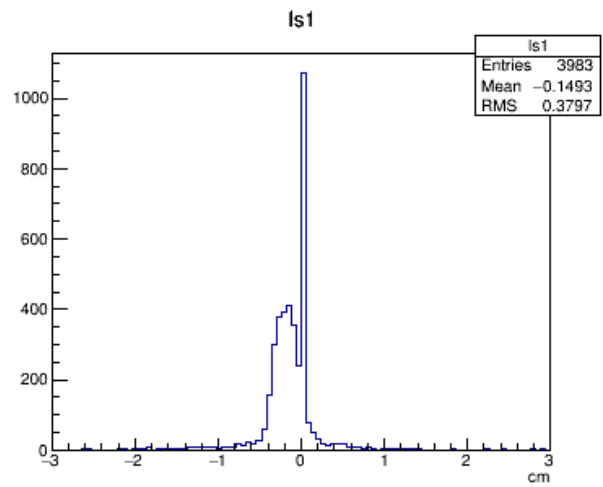


Run 813

Положение и
направлени
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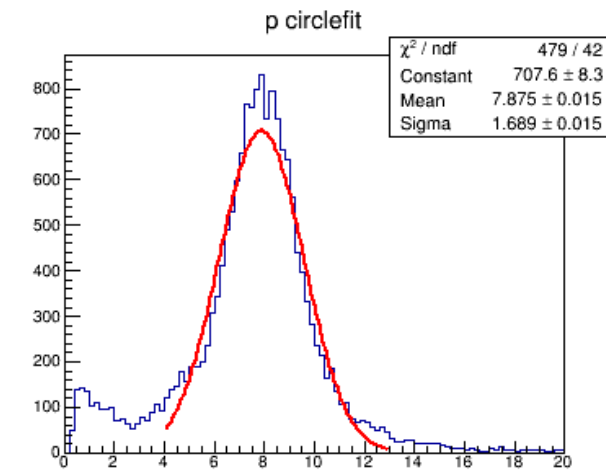
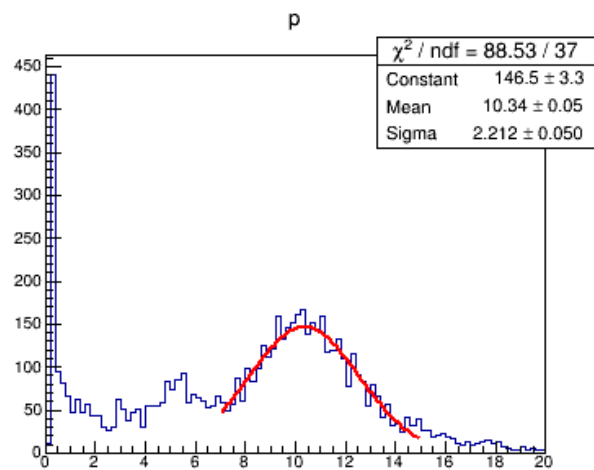
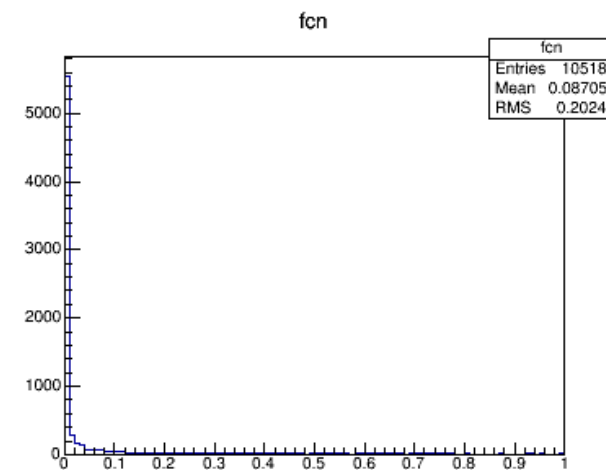
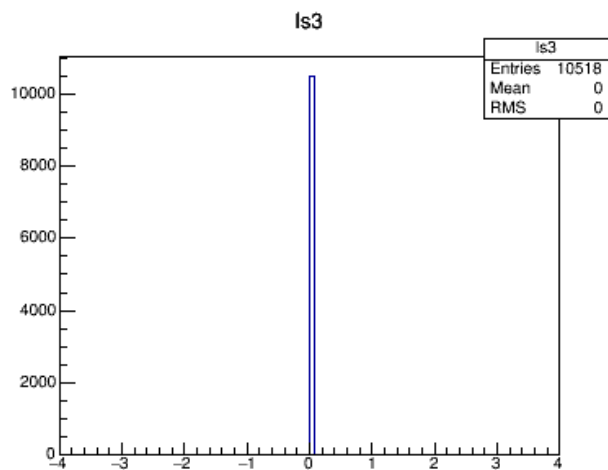
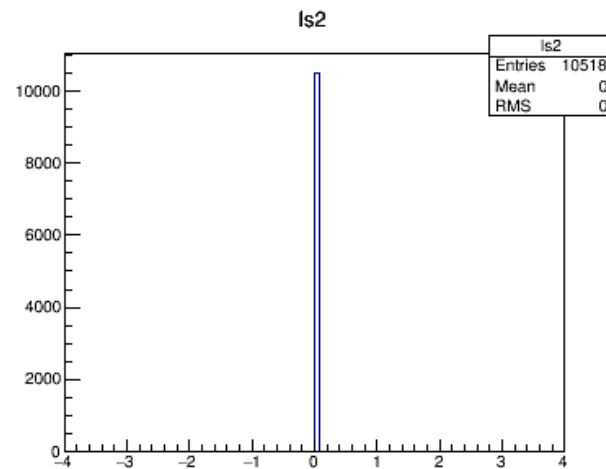
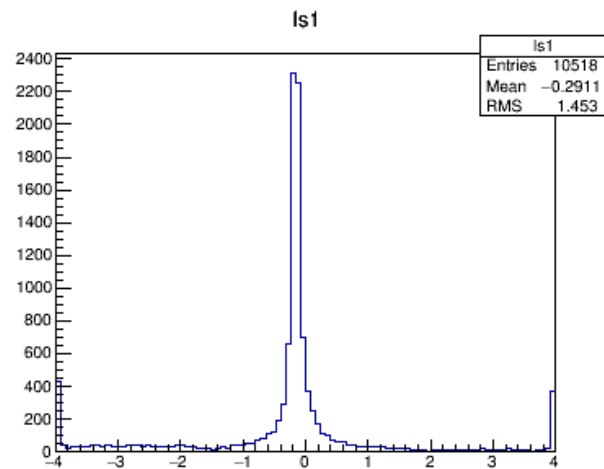


Run 815 PK



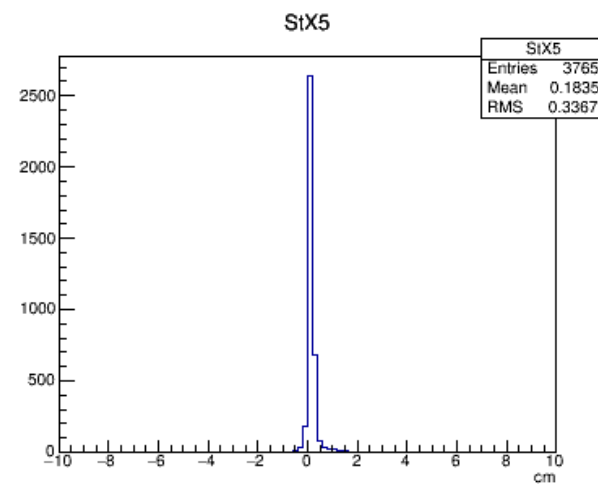
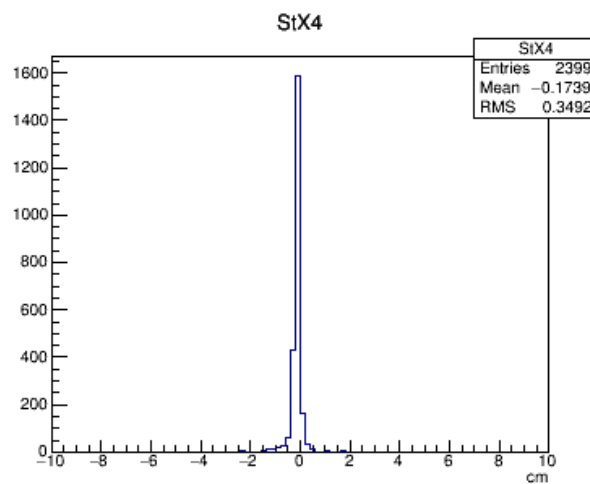
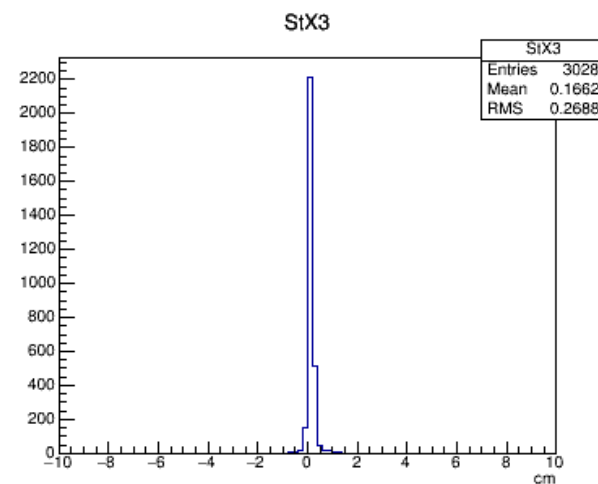
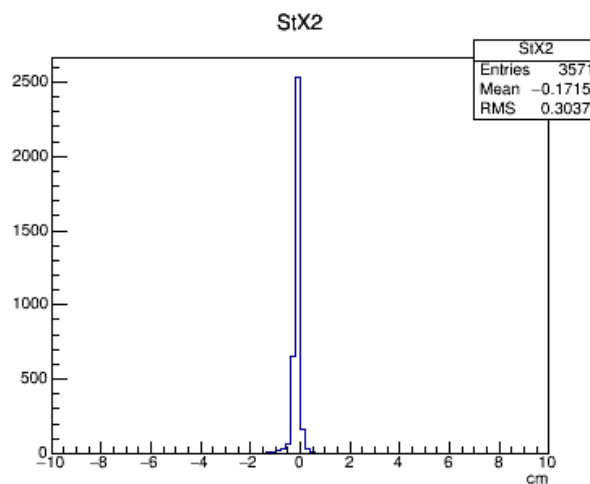
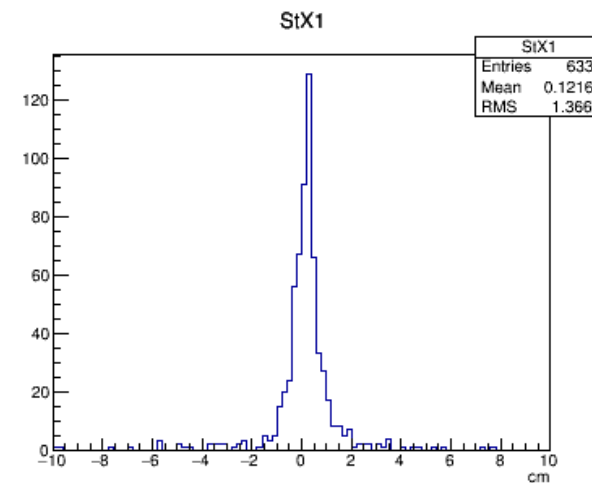
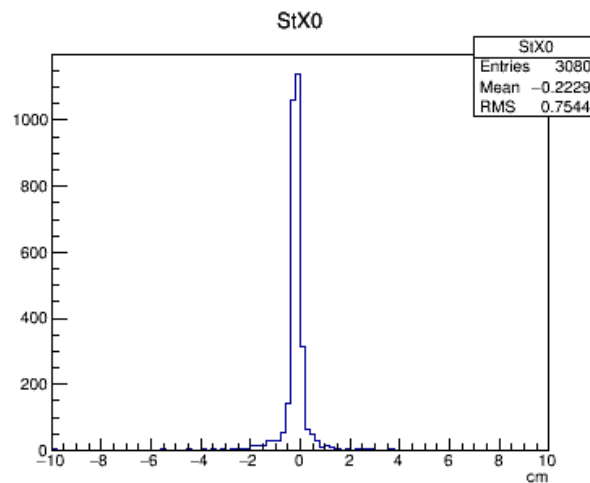
Run 815

окружность



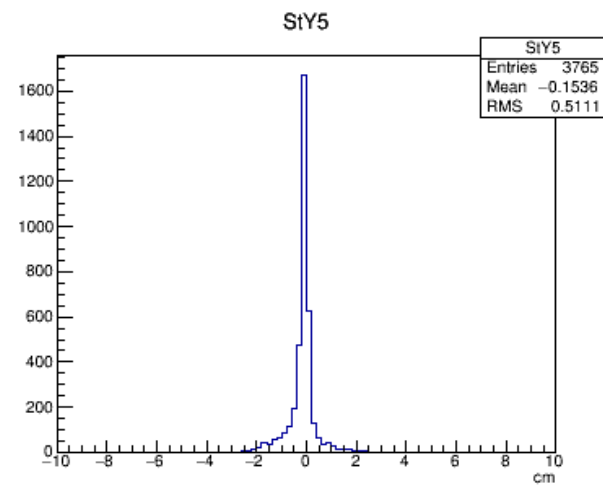
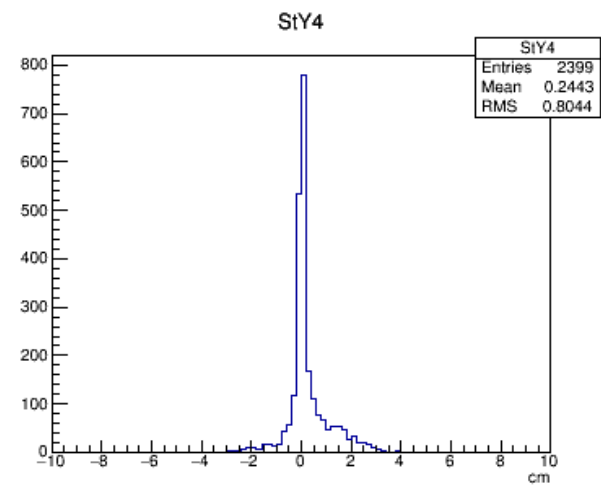
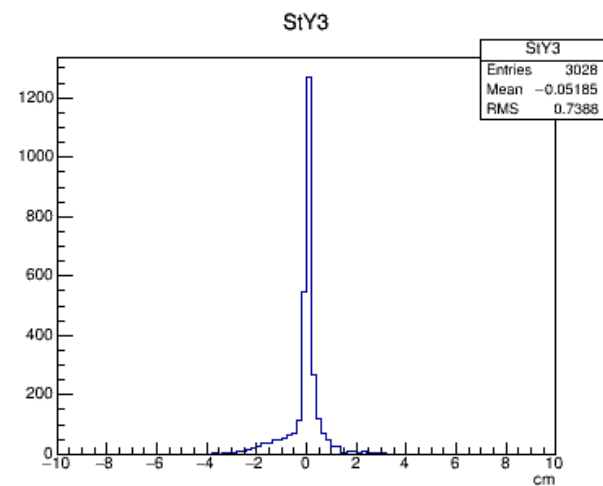
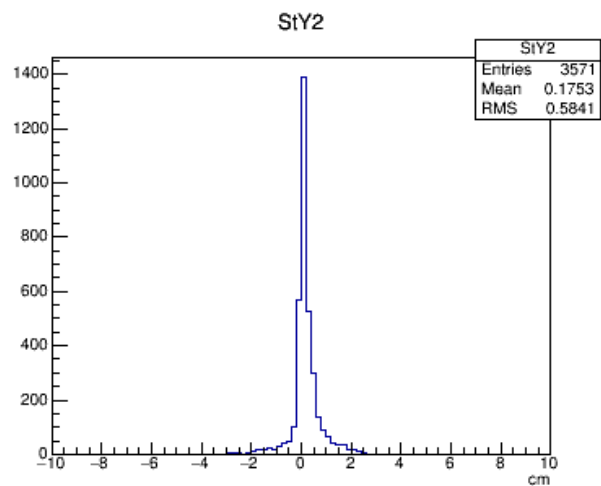
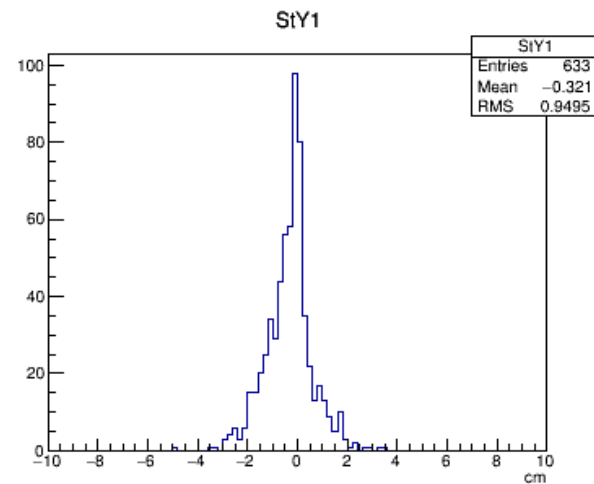
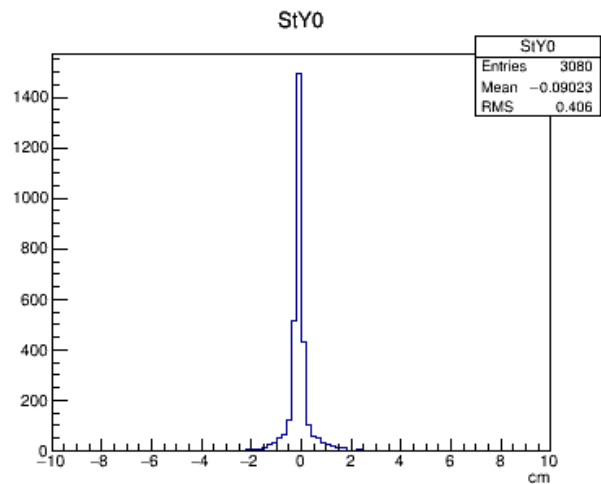
Run 815

X резидуалы



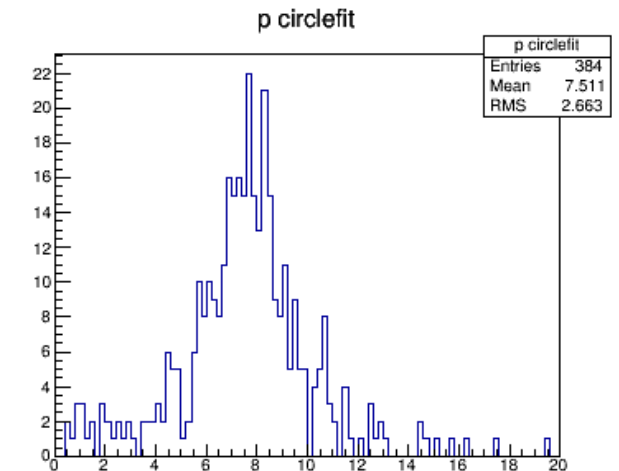
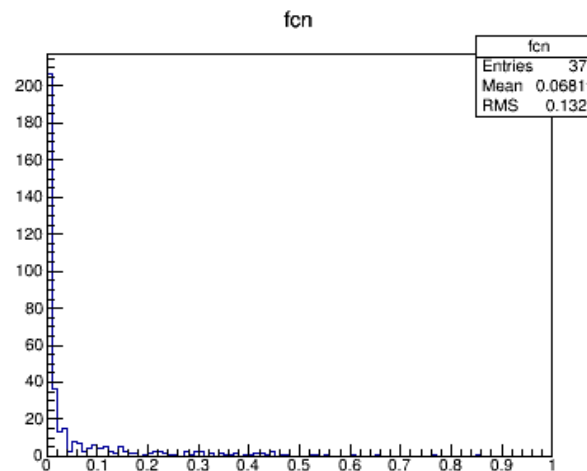
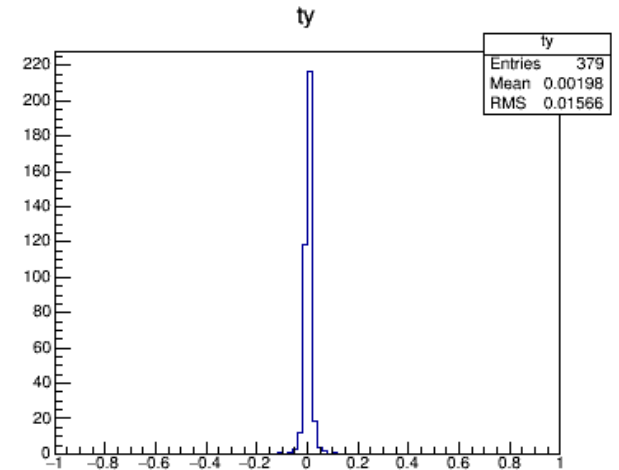
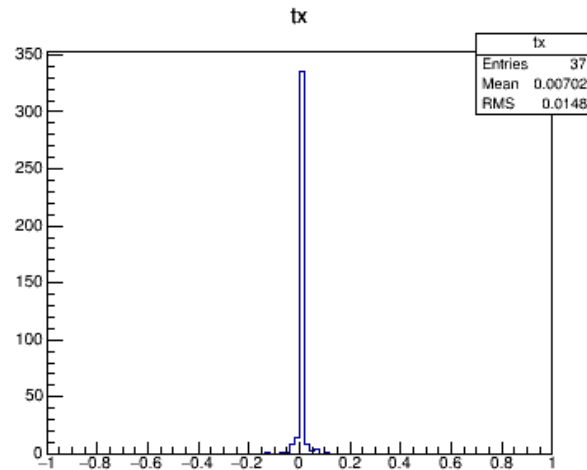
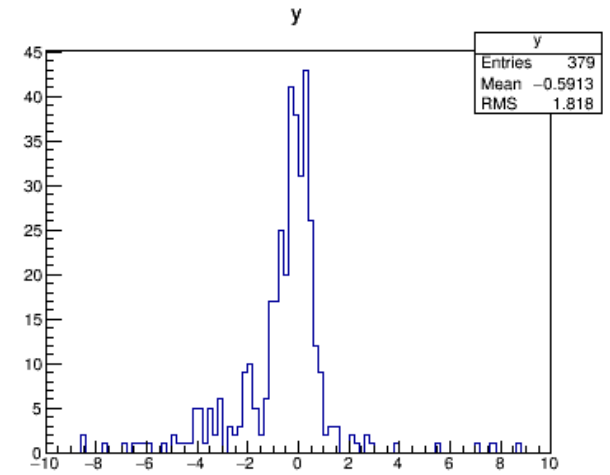
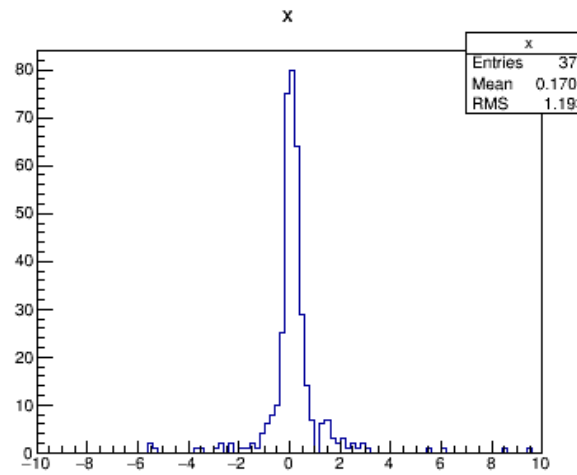
Run 815

Y резидуалы

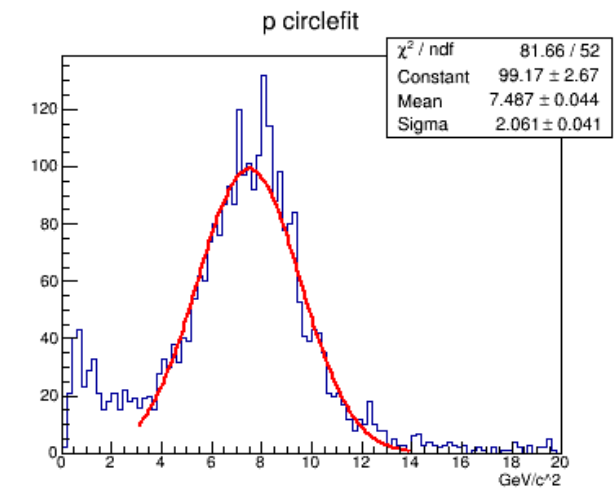
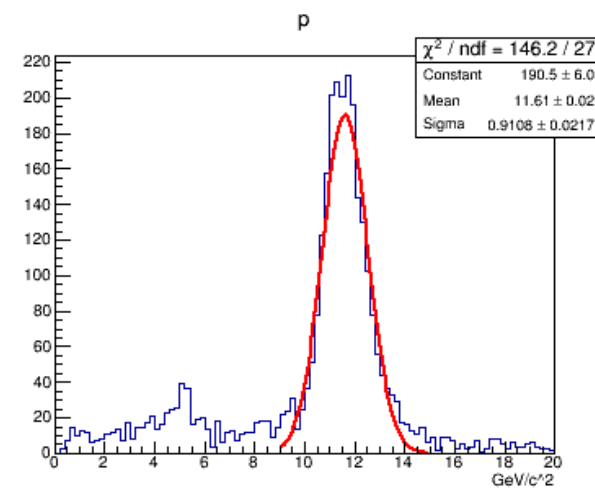
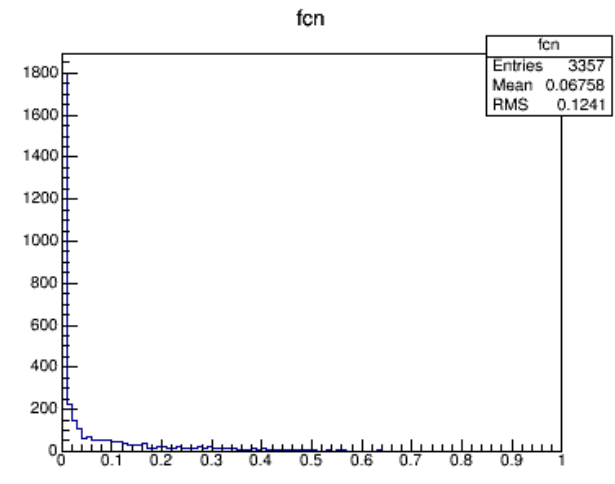
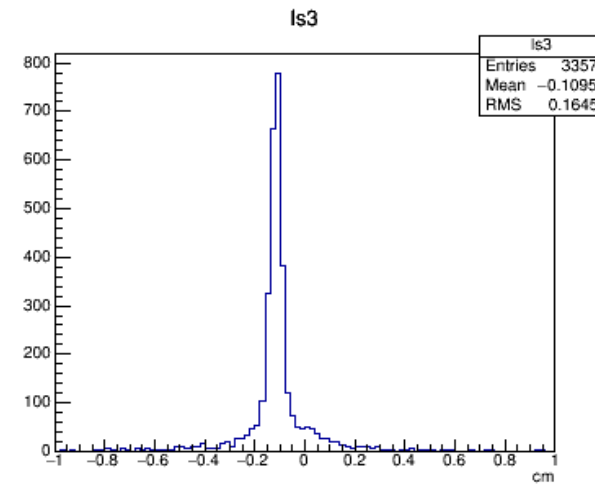
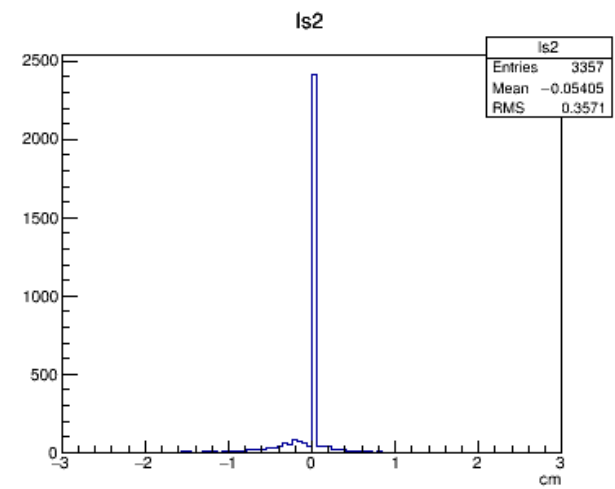
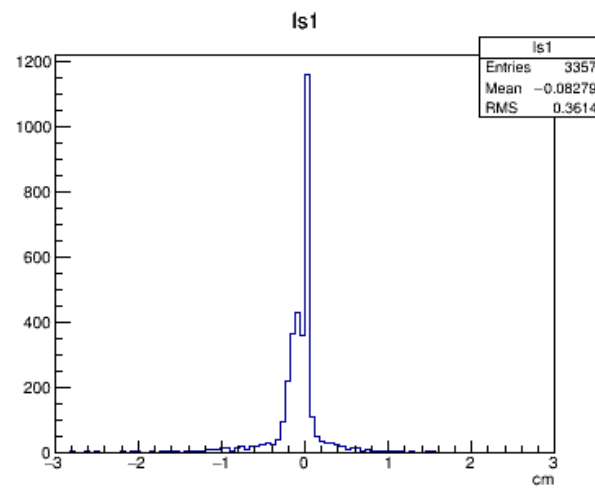


Run 815

Положение и
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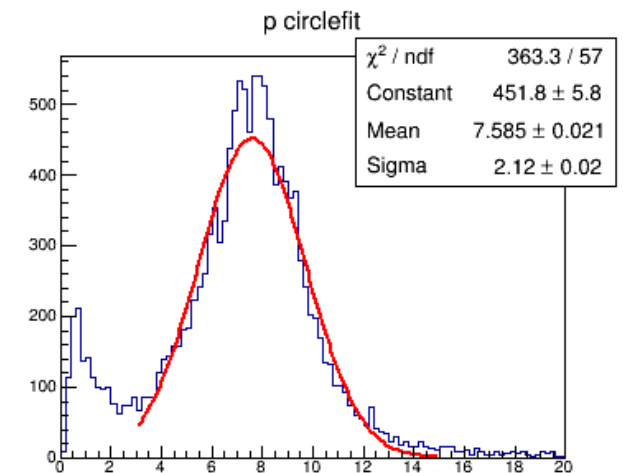
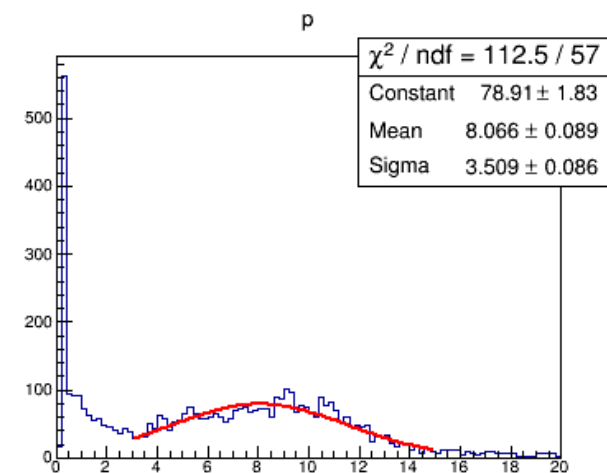
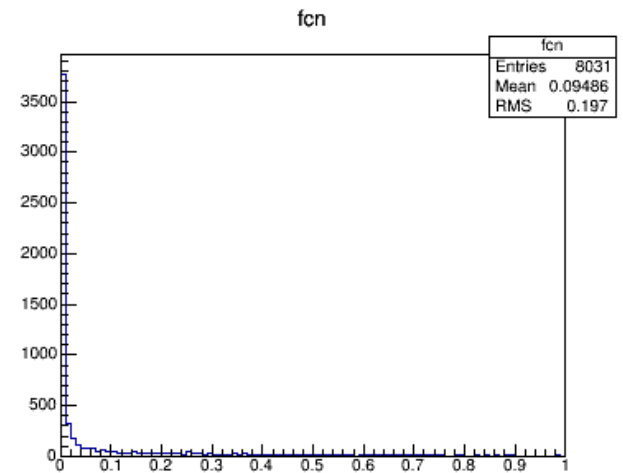
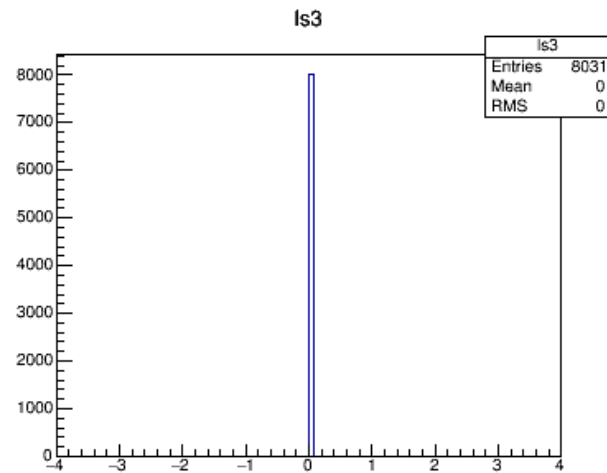
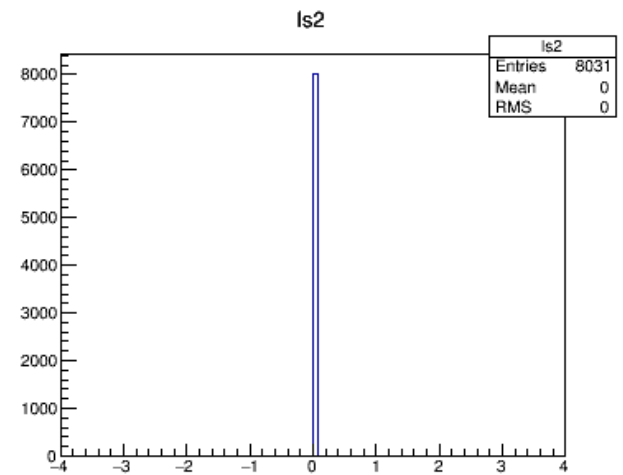
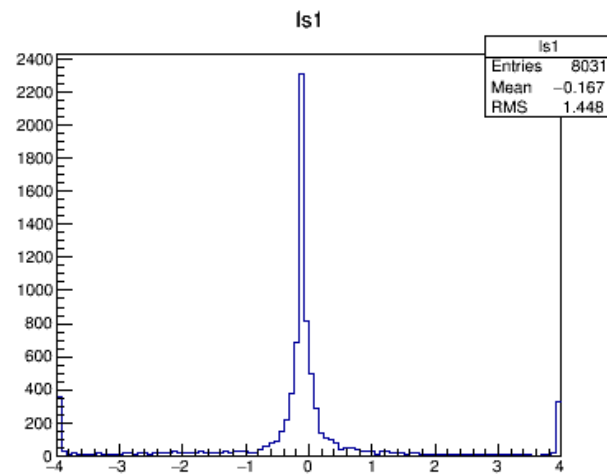


Run 817 PK



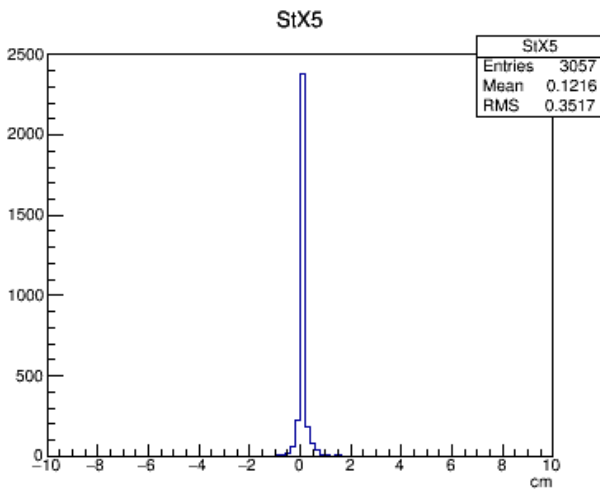
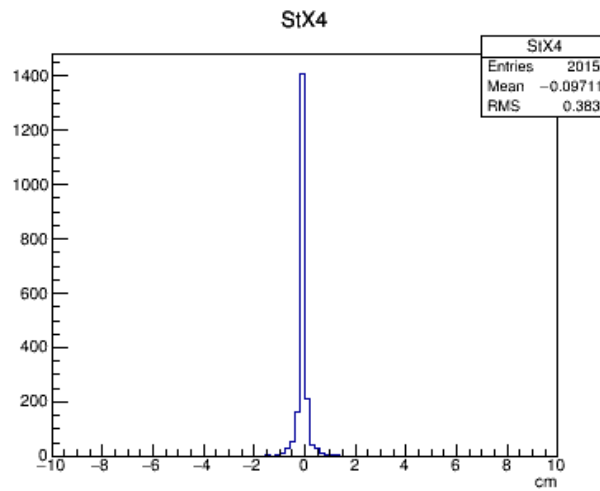
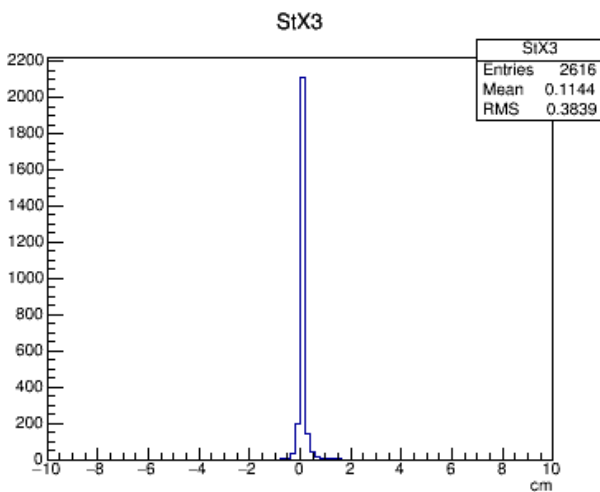
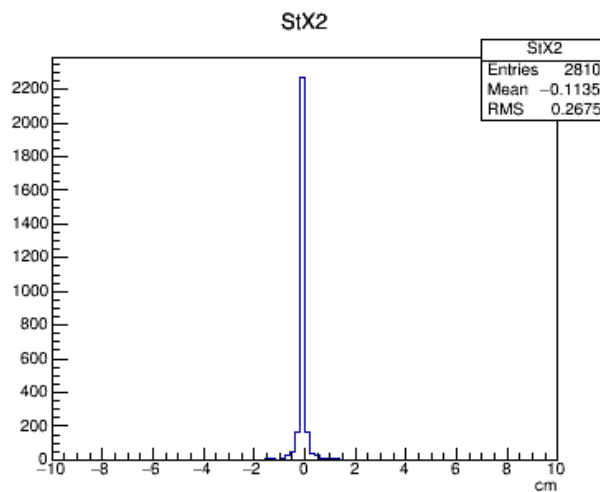
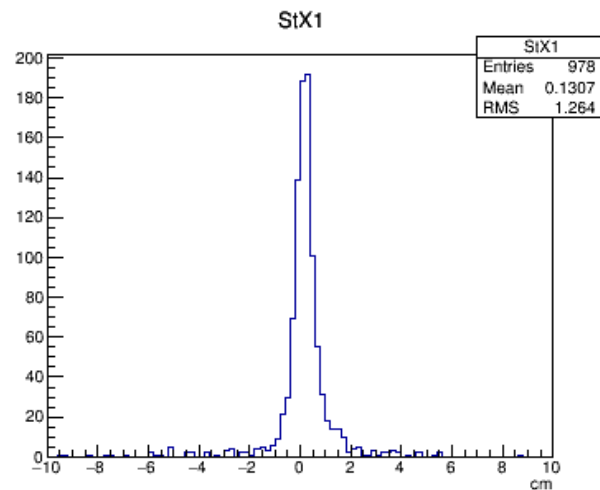
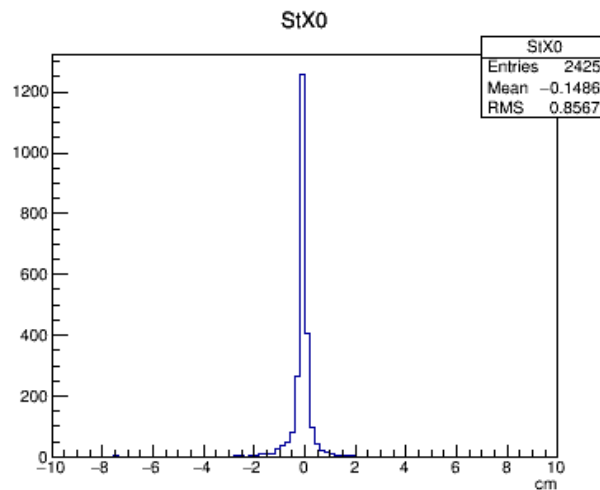
Run 817

окружность



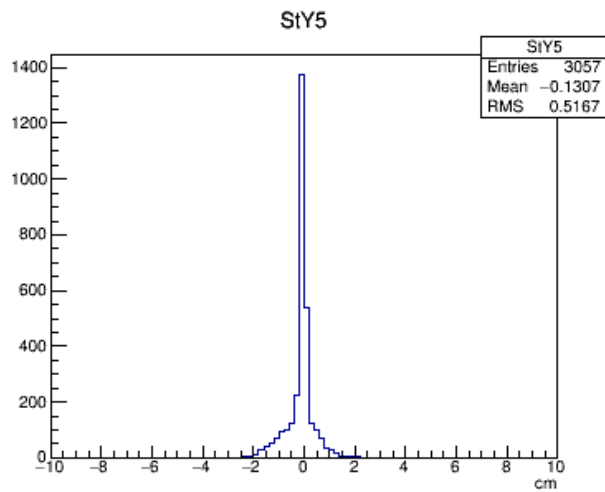
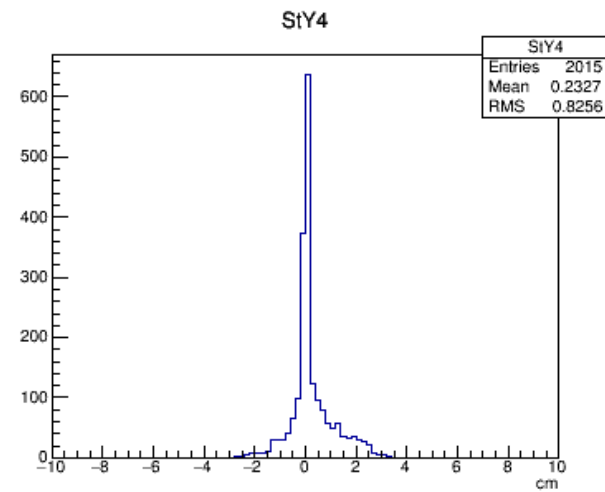
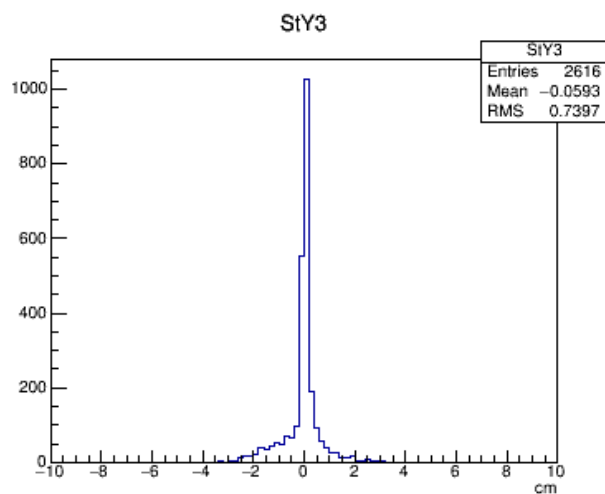
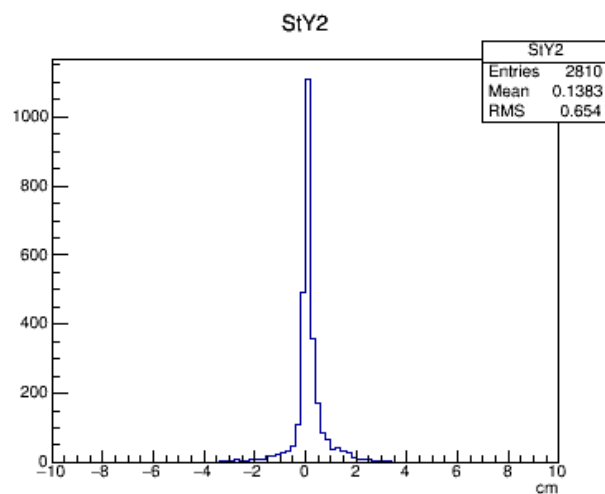
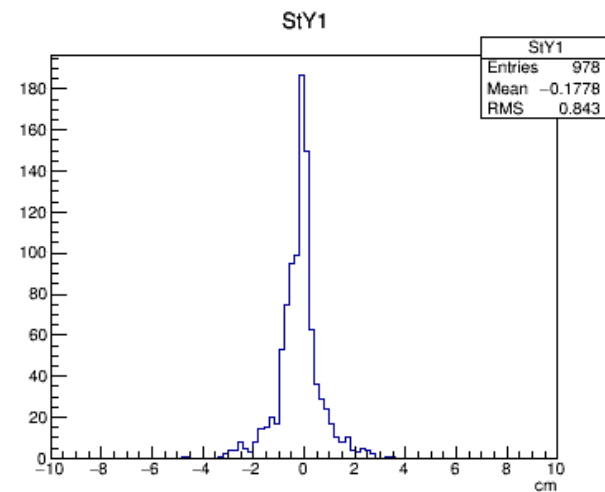
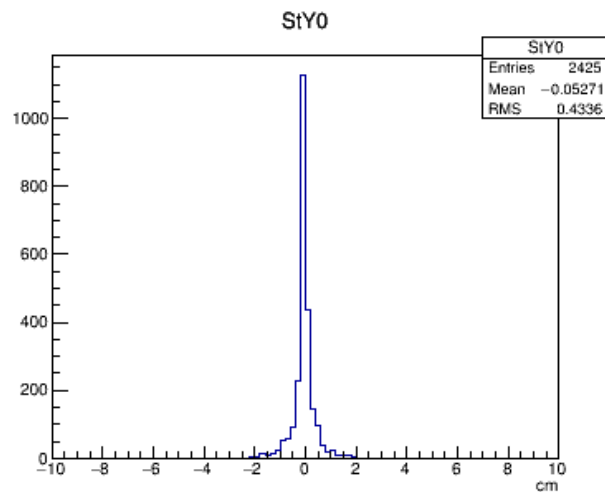
Run 817

X резидуалы



Run 817

Y резидуалы



Run 817

Положение и
направлени
пучка на
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