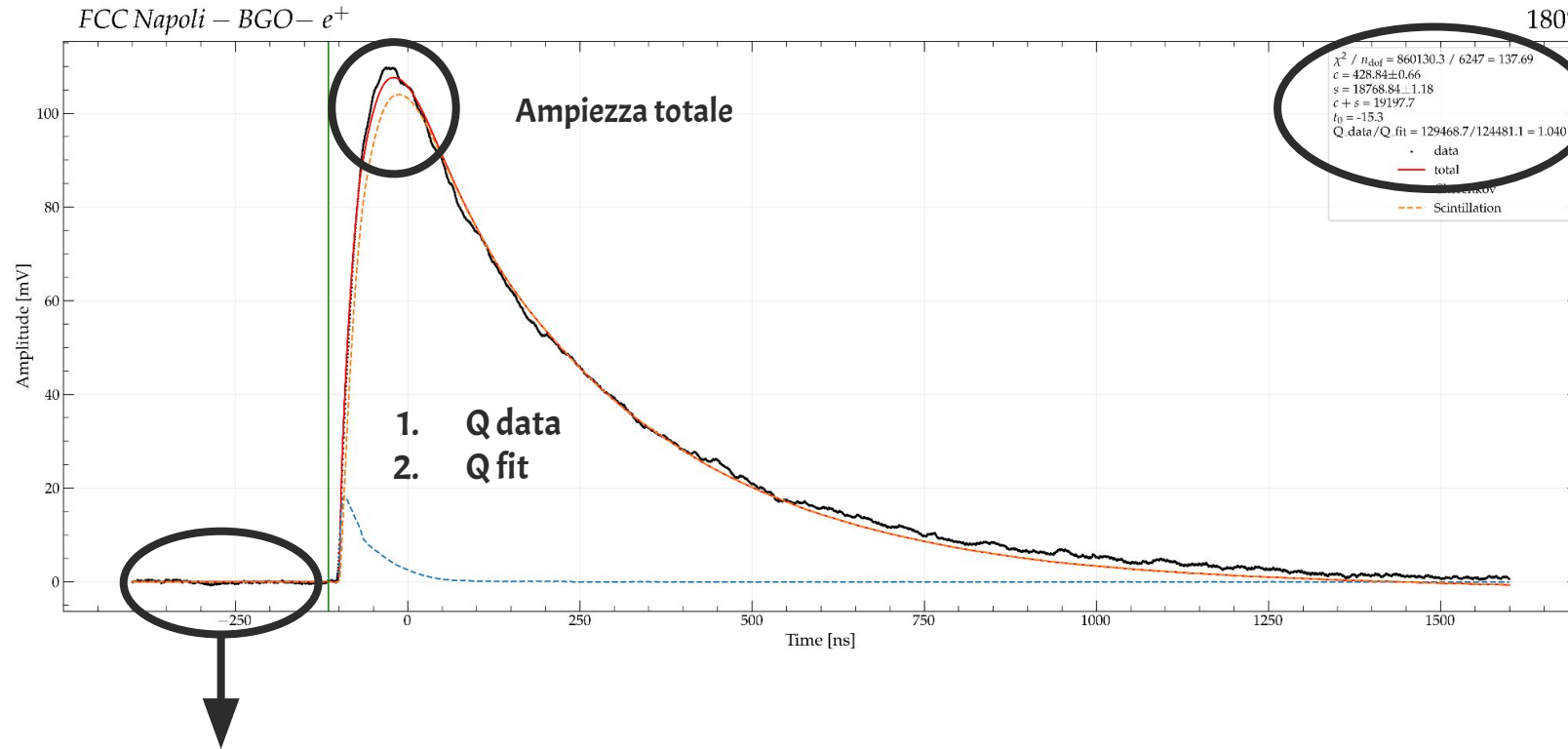


Analysis Test Beam

Giovanni Gaudino – FCC Napoli - 2025, 19th February



Fit con Template: Variabili



Valori del fit: c, s, t_0, χ^2

Ampiezza della Sideband
Std della Sideband

Fit sui 2 canali, entrambi i cristalli, tutti gli angoli → 1 Dataframe per ogni cristallo, angolo, canale

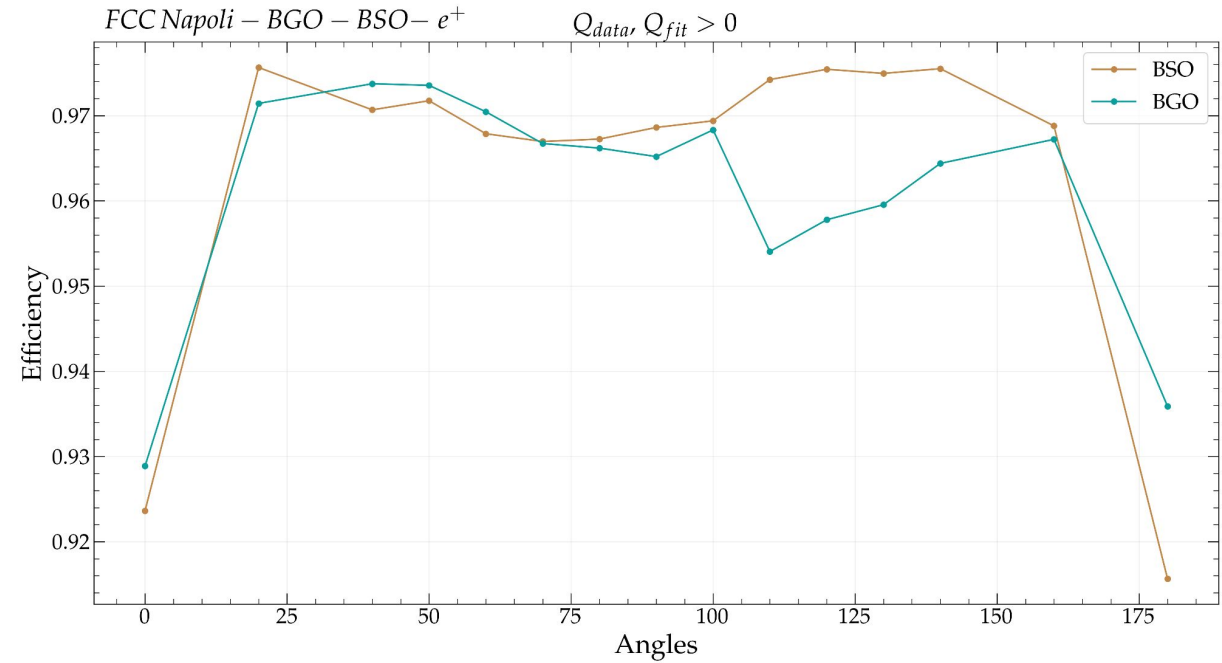
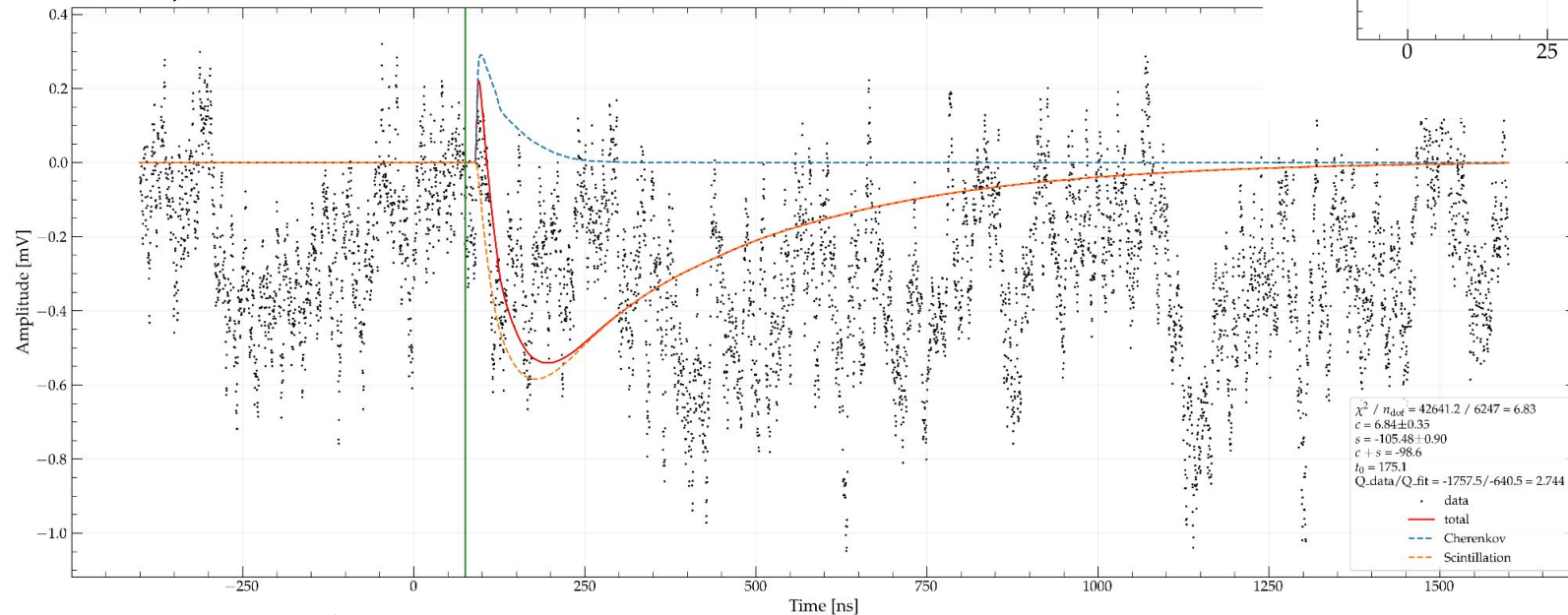
CutFlow: Efficiency - Selection

1. Tagli di preselection (AND su entrambi i canali):

- a. $Q_{data} > 0$
- b. $Q_{fit} > 0$

Esempio di evento rimosso

FCC Napoli - BGO - BSO - e^+

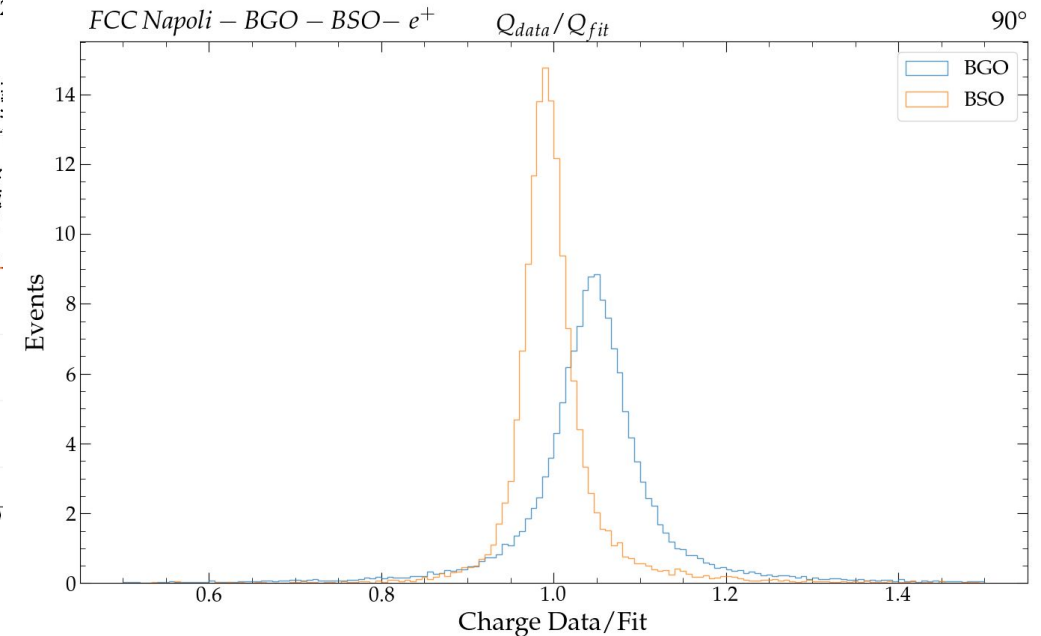
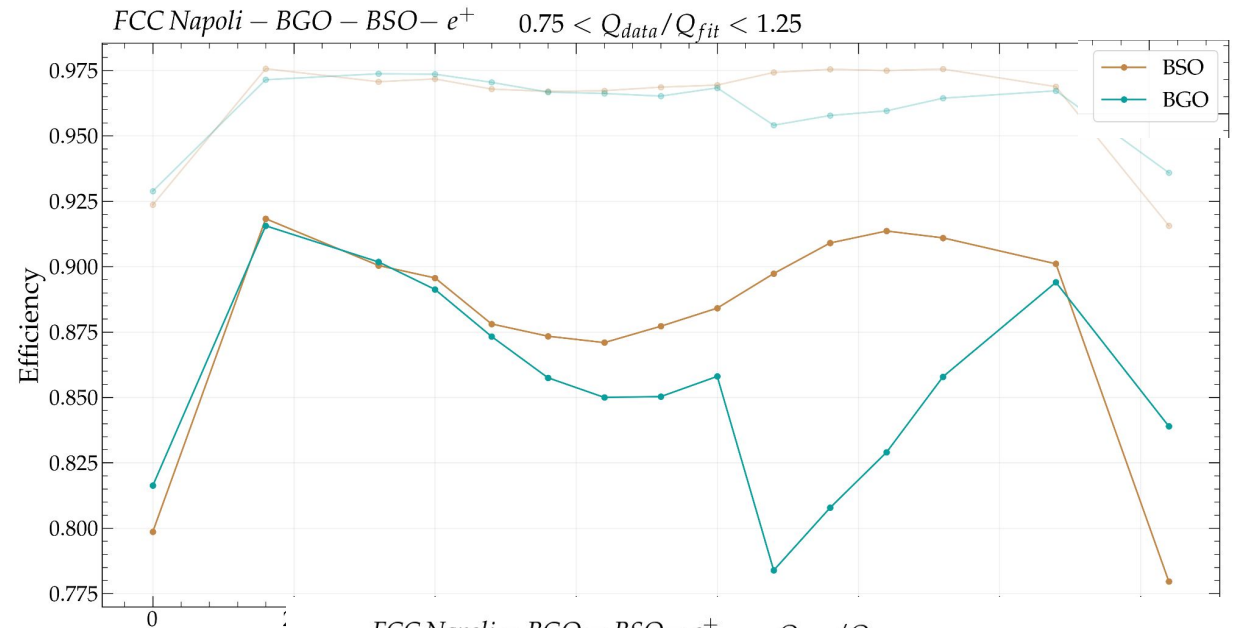
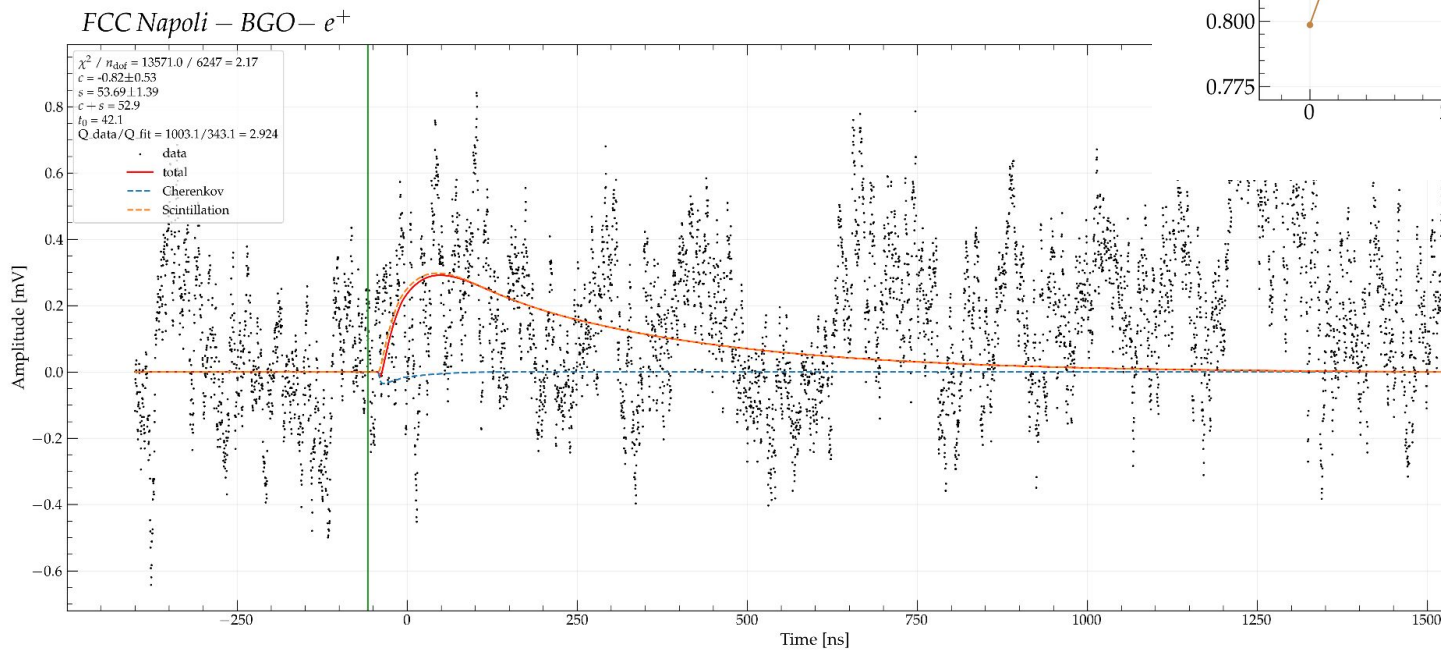


CutFlow: Efficiency - Selection

1. Tagli di preselection (AND su entrambi i canali):

- $Q_{data} > 0$
- $Q_{fit} > 0$
- $Q_{data}/Q_{fit} \in [0.75, 1.25]$

Esempio di evento rimosso

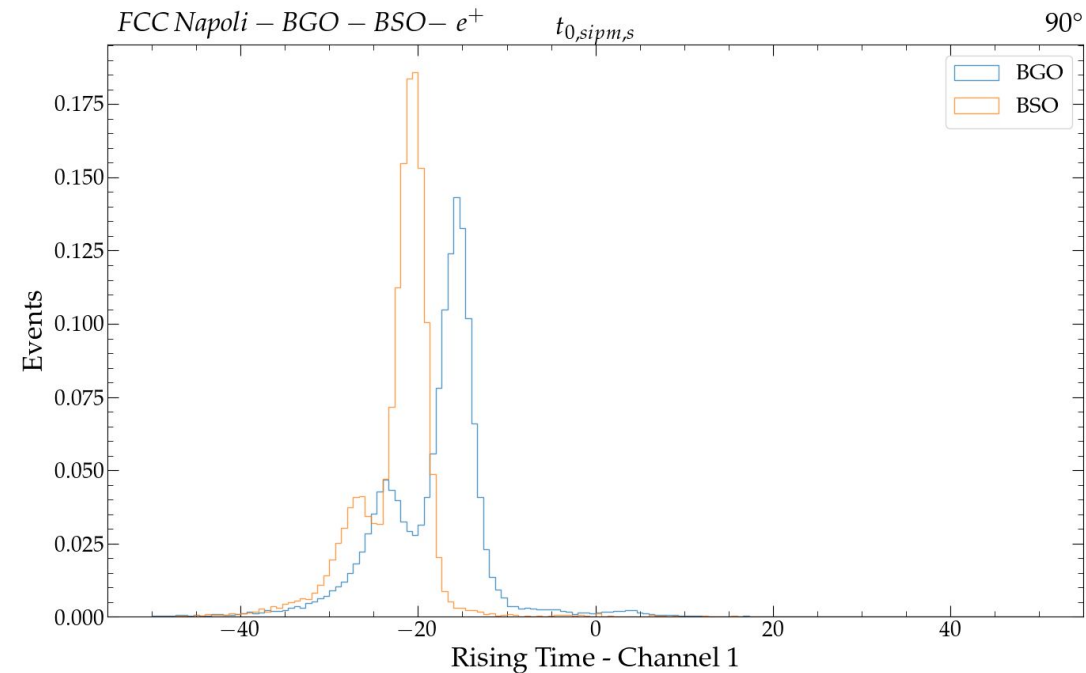
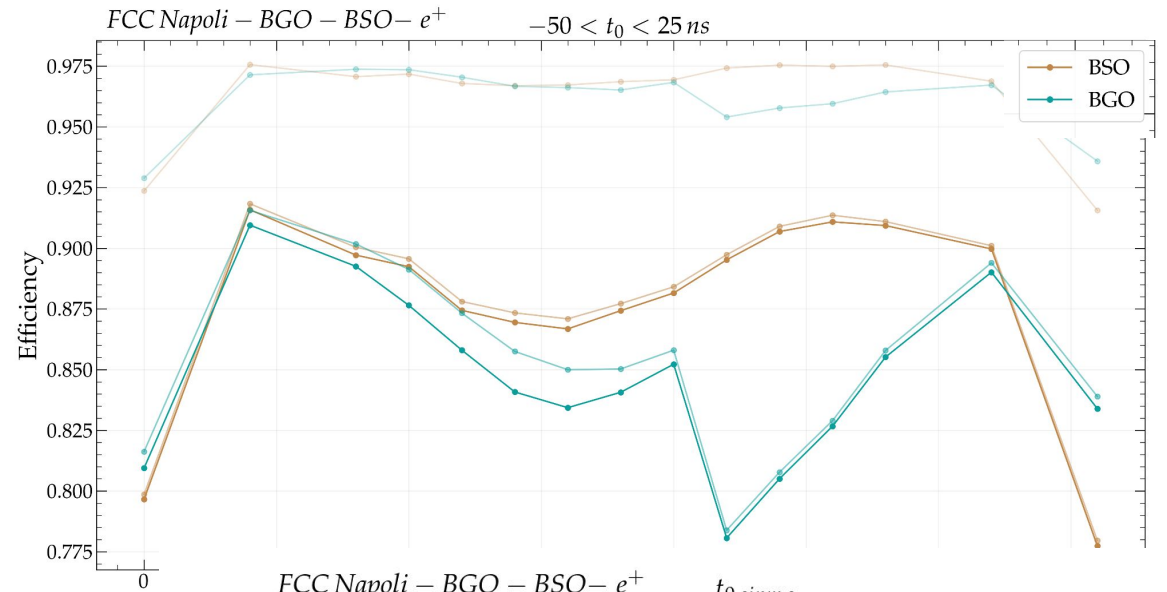
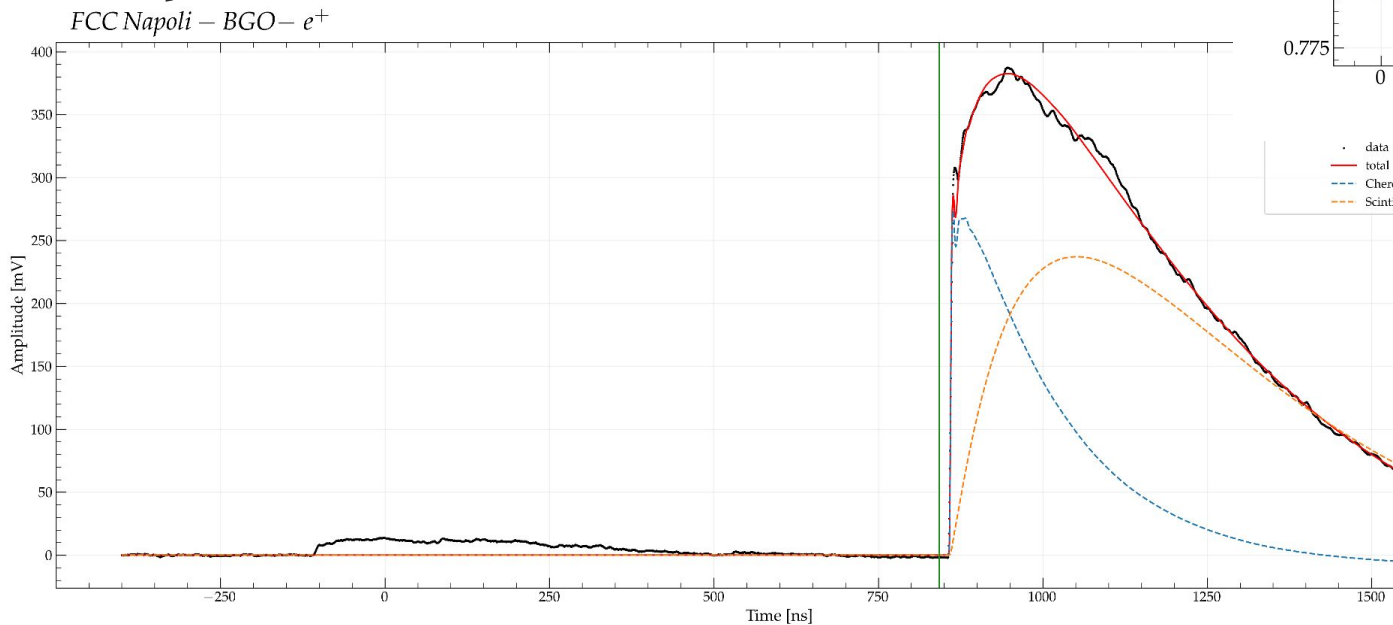


CutFlow: Efficiency - Selection

1. Tagli di preselection (AND su entrambi i canali):

- $Q_{\text{data}} > 0$
- $Q_{\text{fit}} > 0$
- $Q_{\text{data}}/Q_{\text{fit}} \in [0.9, 1.1]$
- $-50 < t_0 < 25 \text{ ns}$

Esempio di evento rimosso

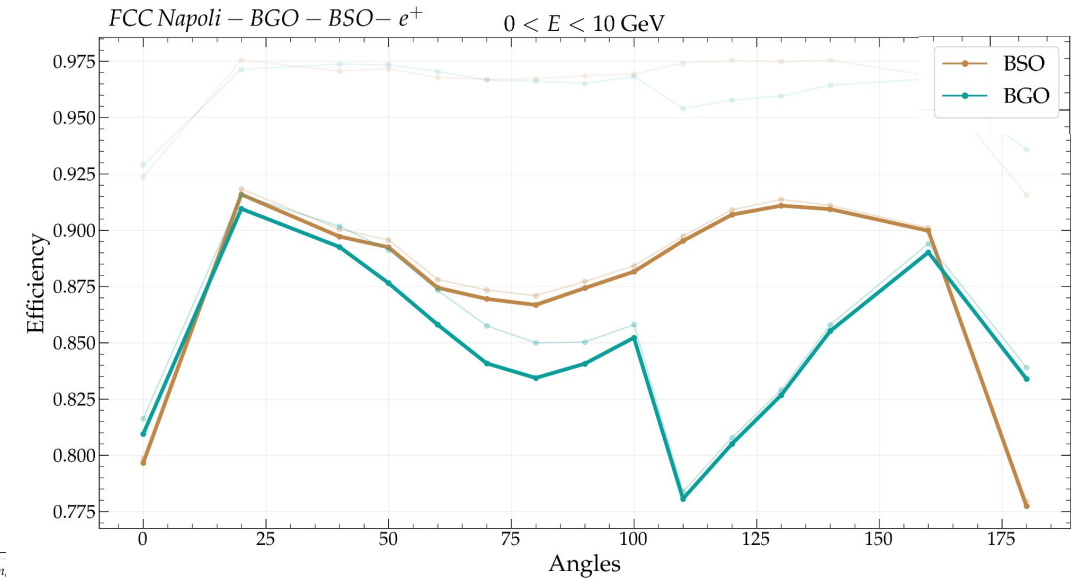
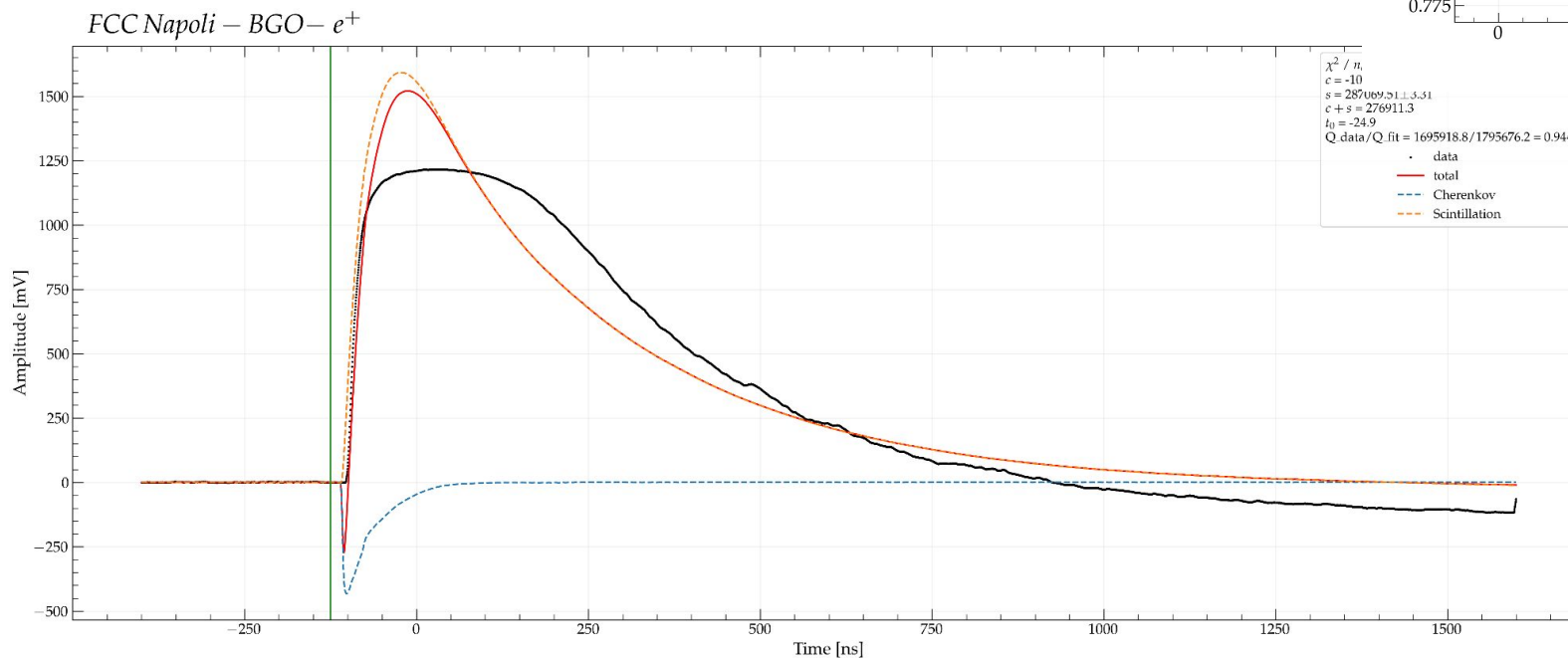


CutFlow: Efficiency - Selection

1. Tagli di preselection (AND su entrambi i canali):

- $Q_{\text{data}} > 0$
- $Q_{\text{fit}} > 0$
- $Q_{\text{data}}/Q_{\text{fit}} \in [0.9, 1.1]$
- $-50 < t_0 < 25 \text{ ns}$
- $0 < E < 10 \text{ GeV}$

Esempio di evento rimosso



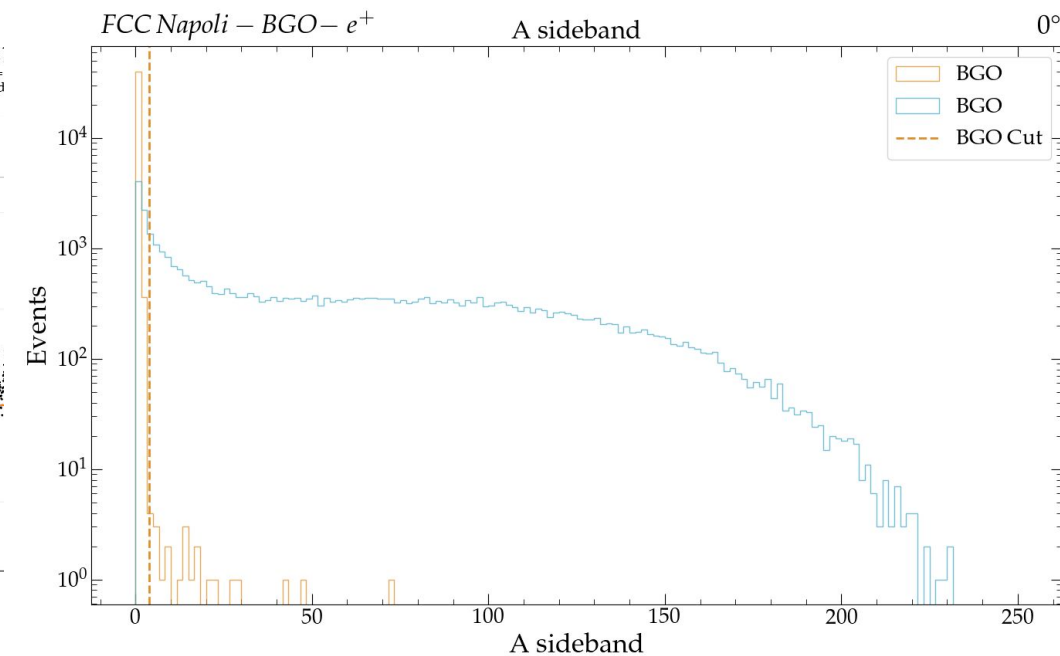
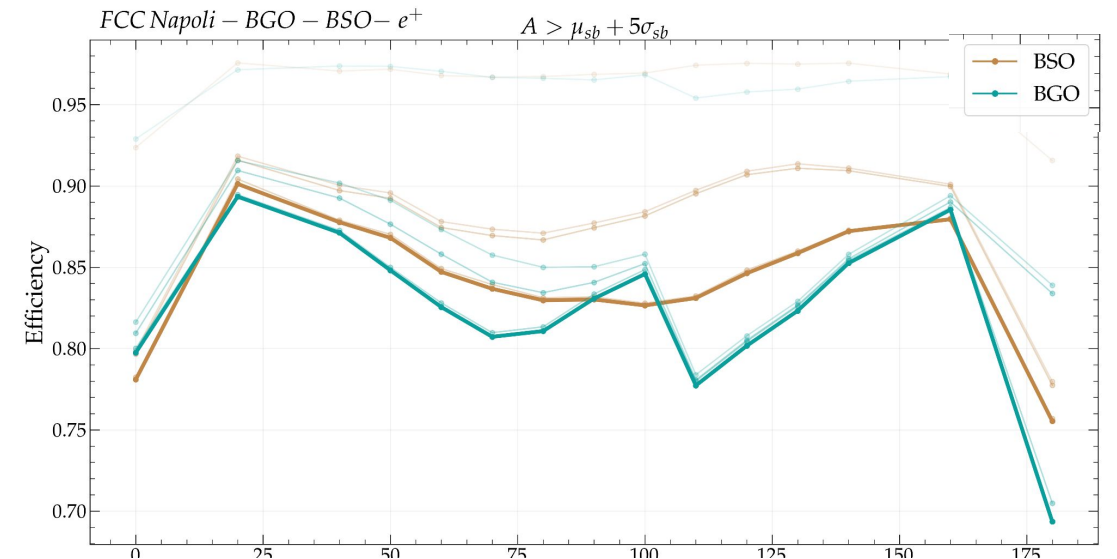
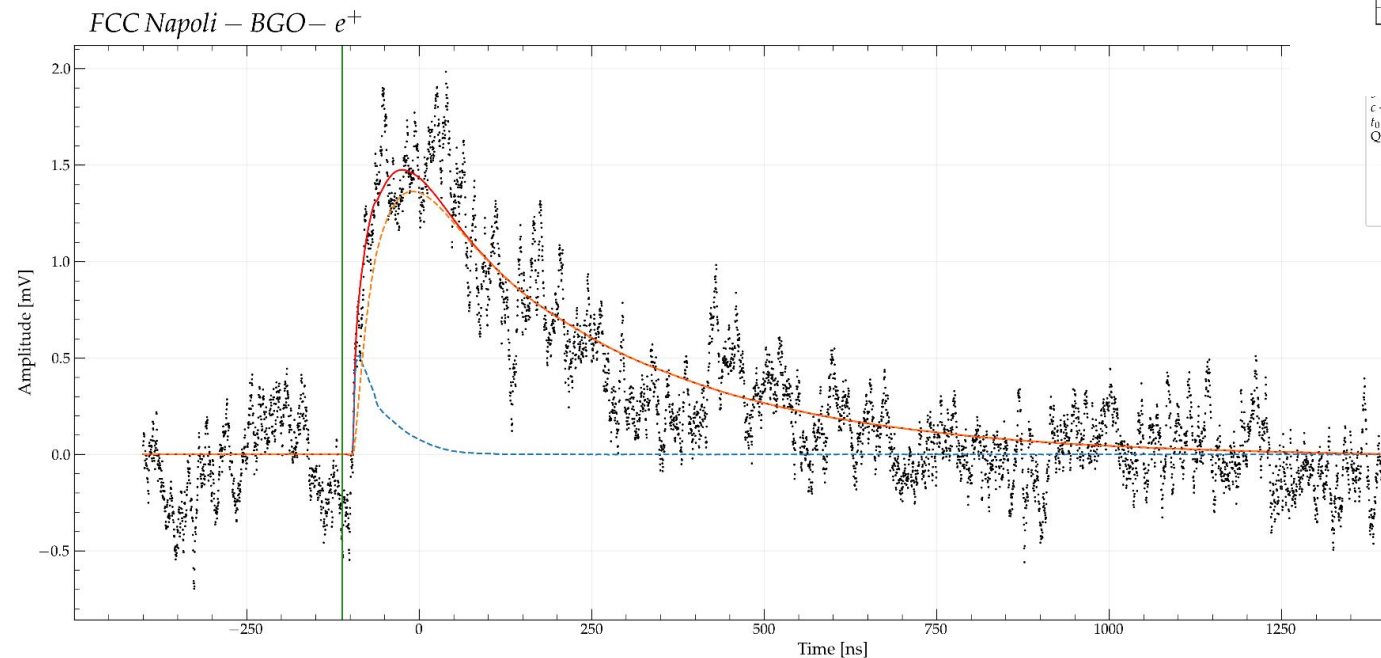
CutFlow: Efficiency - Selection

1. Tagli di preselection (AND su entrambi i canali):

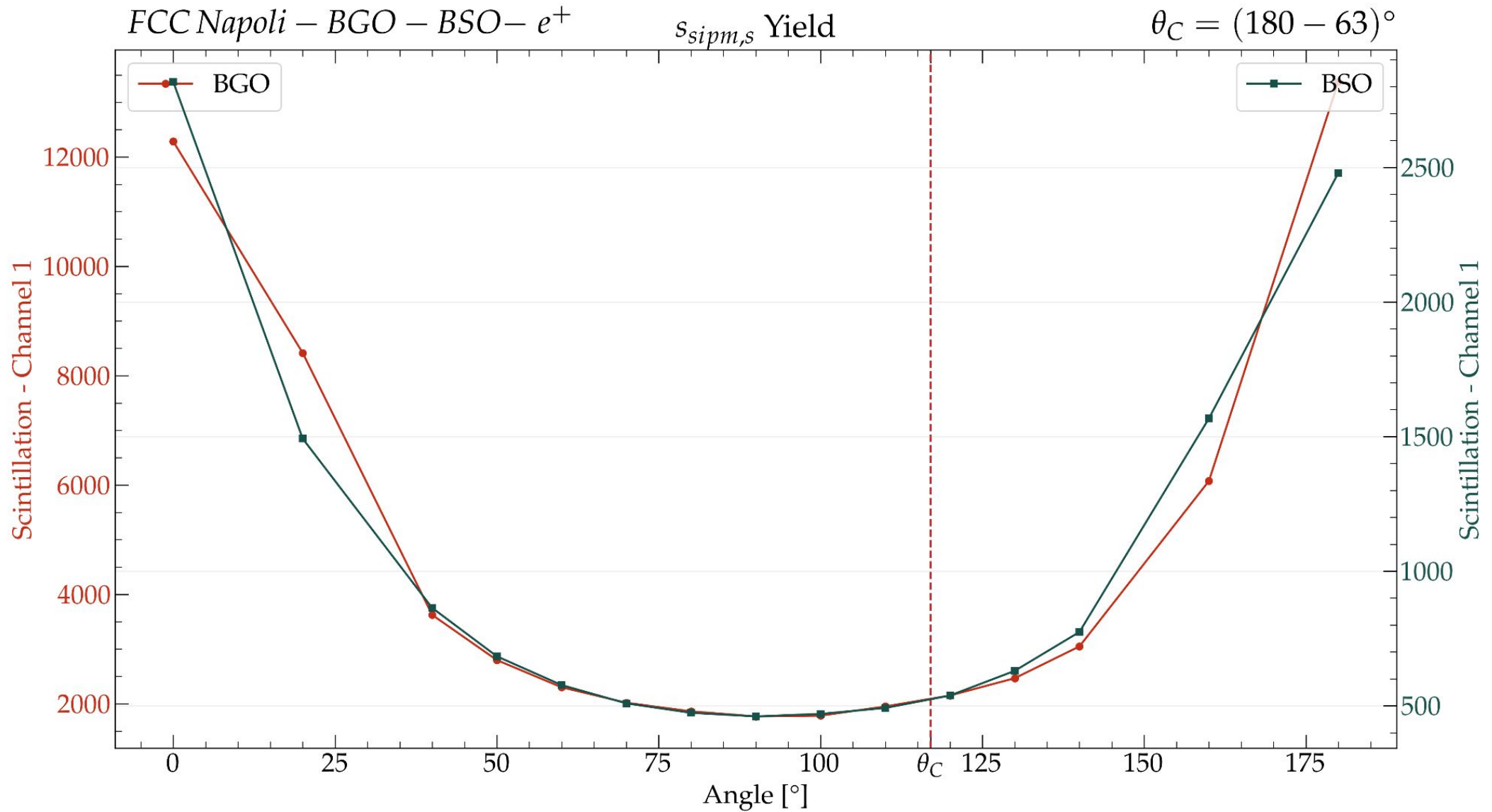
2. Taglio delle ampiezze:

a. $A > \mu(\text{sideband}) + 5 * \sigma(\text{sideband})$

Esempio di evento rimosso

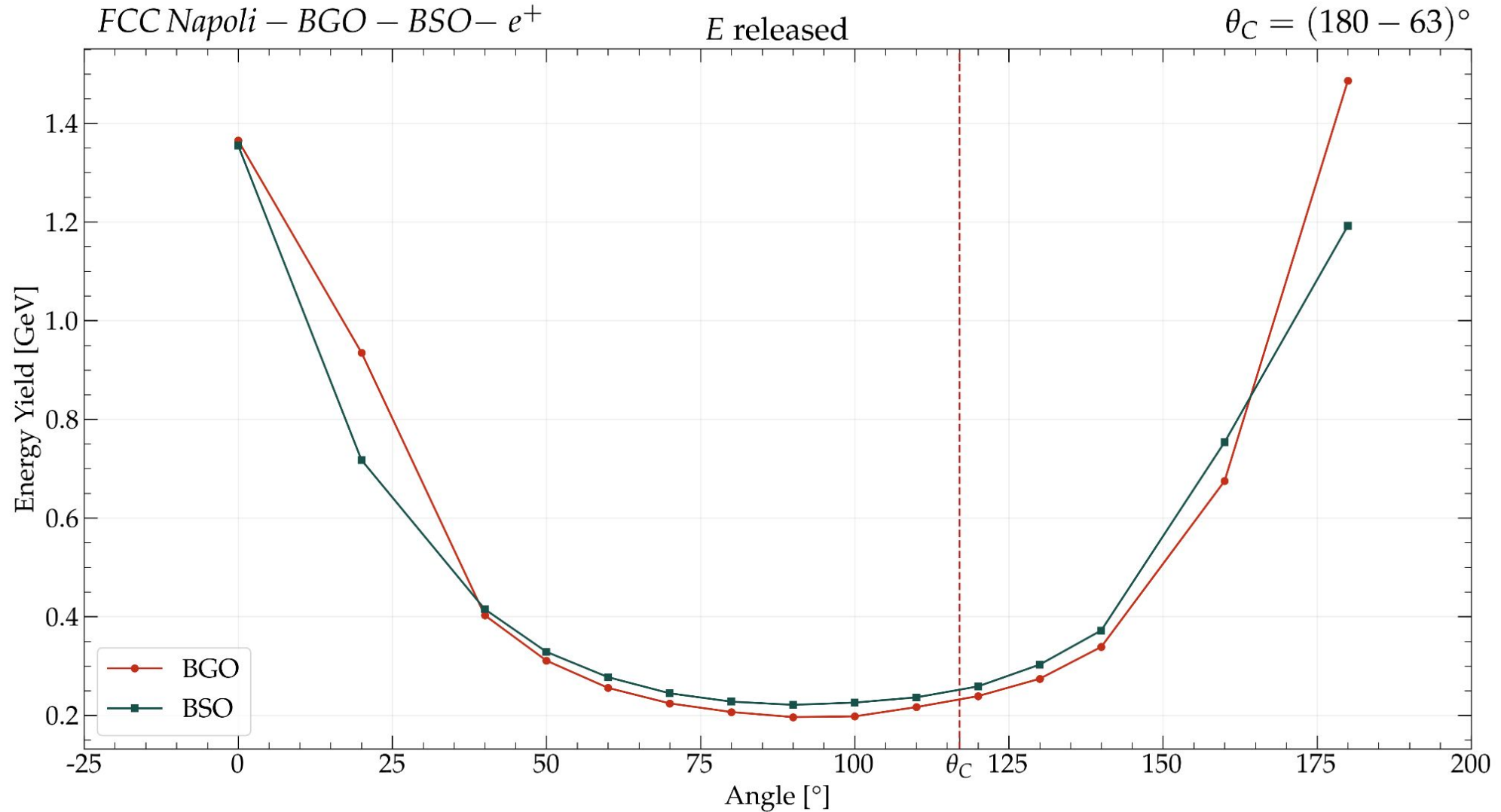


Scan in Angolo: Scintillation Yield



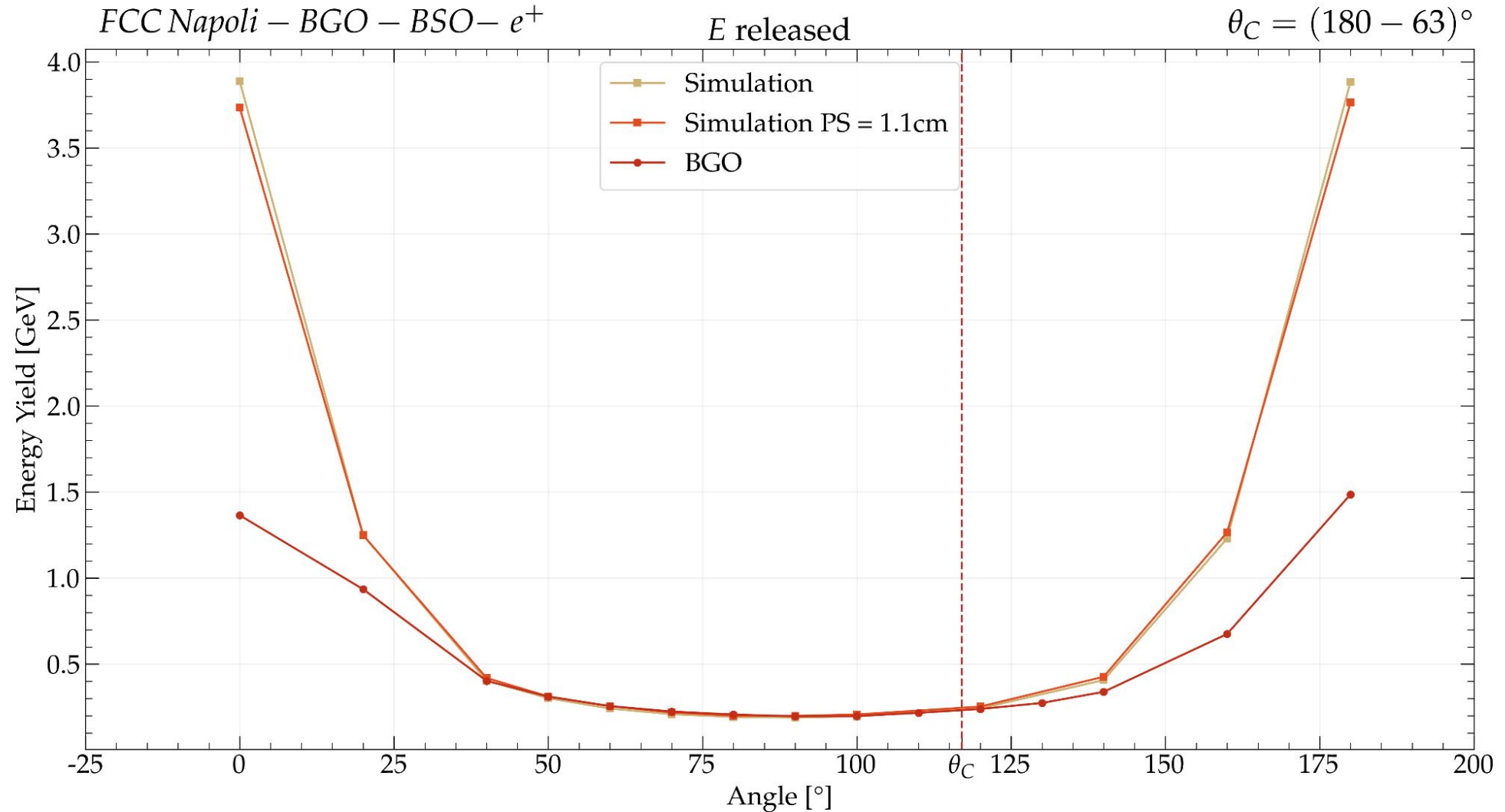
Scan in Angolo: Energy

Energy = scintillation Yield on Channel 1 * Conversion Factor

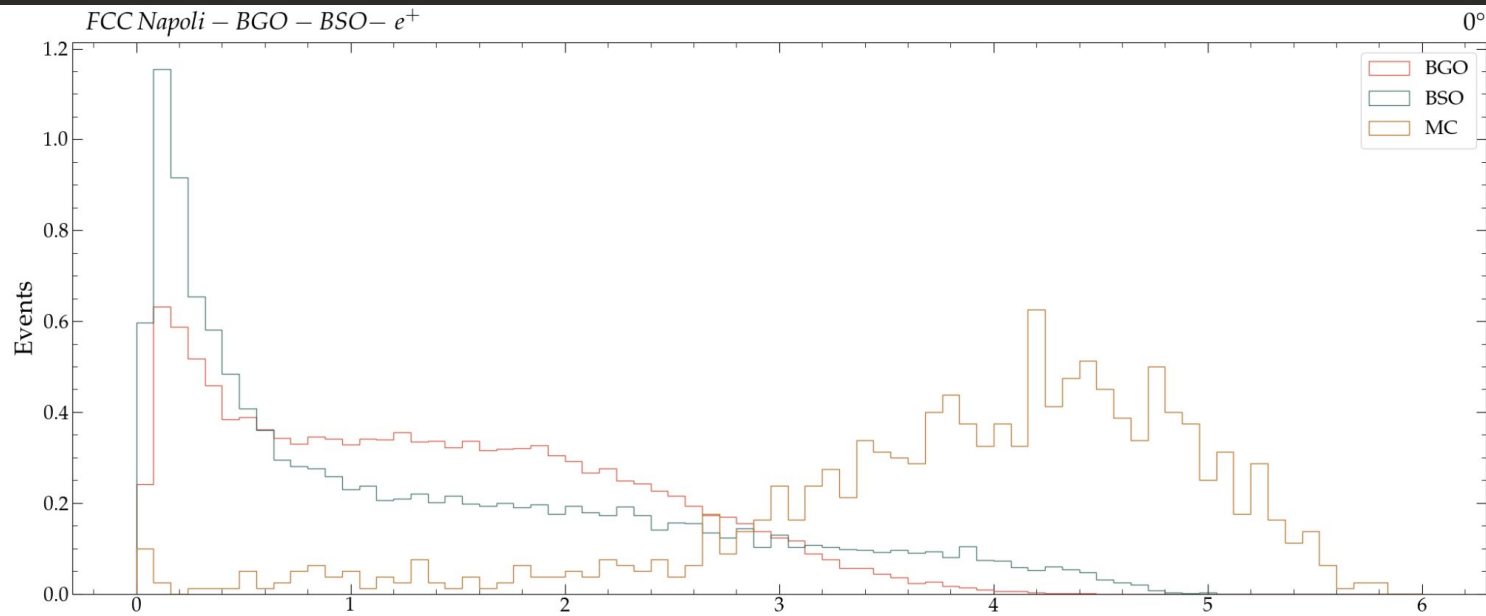


Scan in Angolo: Energy Data vs MC

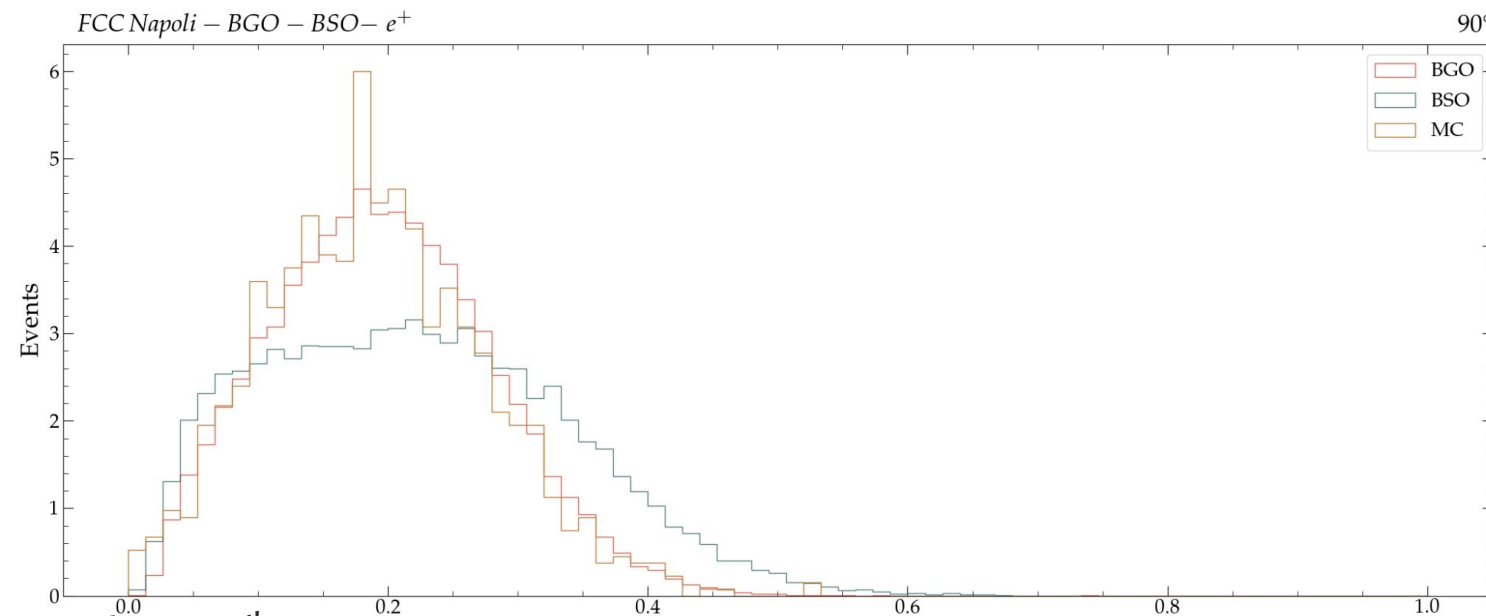
Energy = scintillation Yield on Channel 1 * Conversion Factor



Distribuzione in Energia



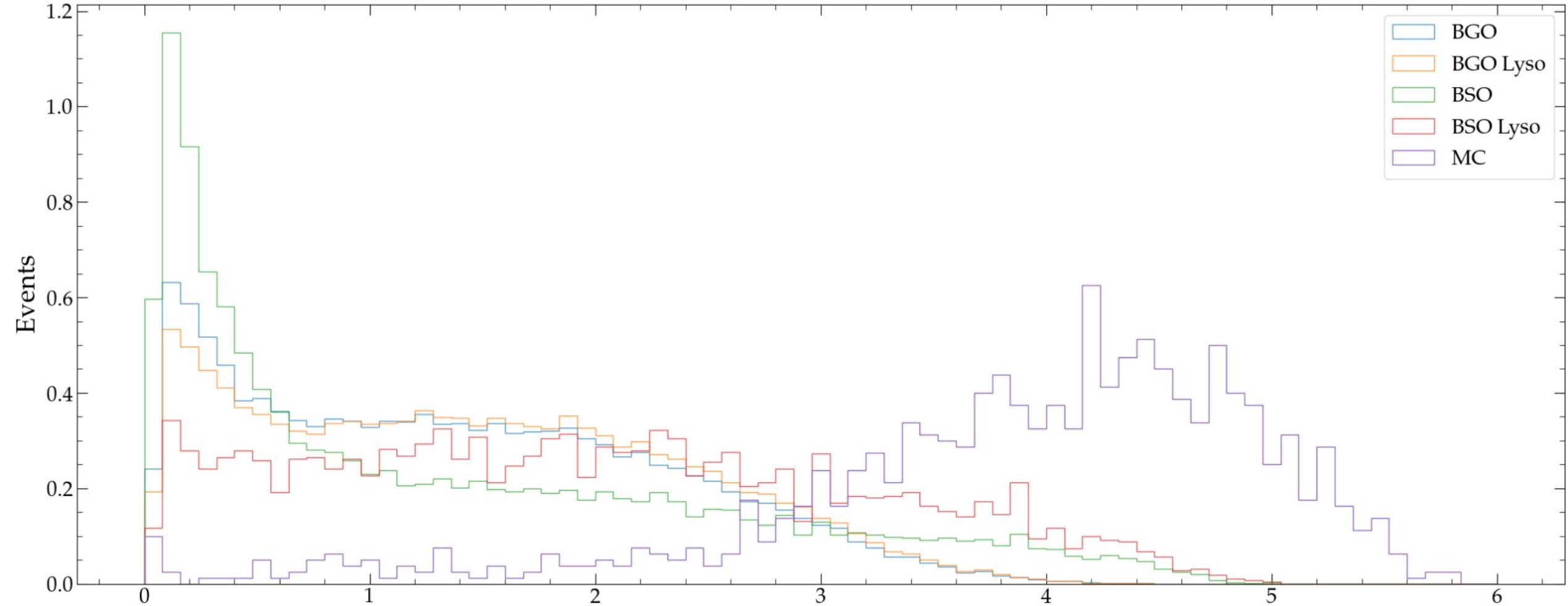
0° simile a 180°



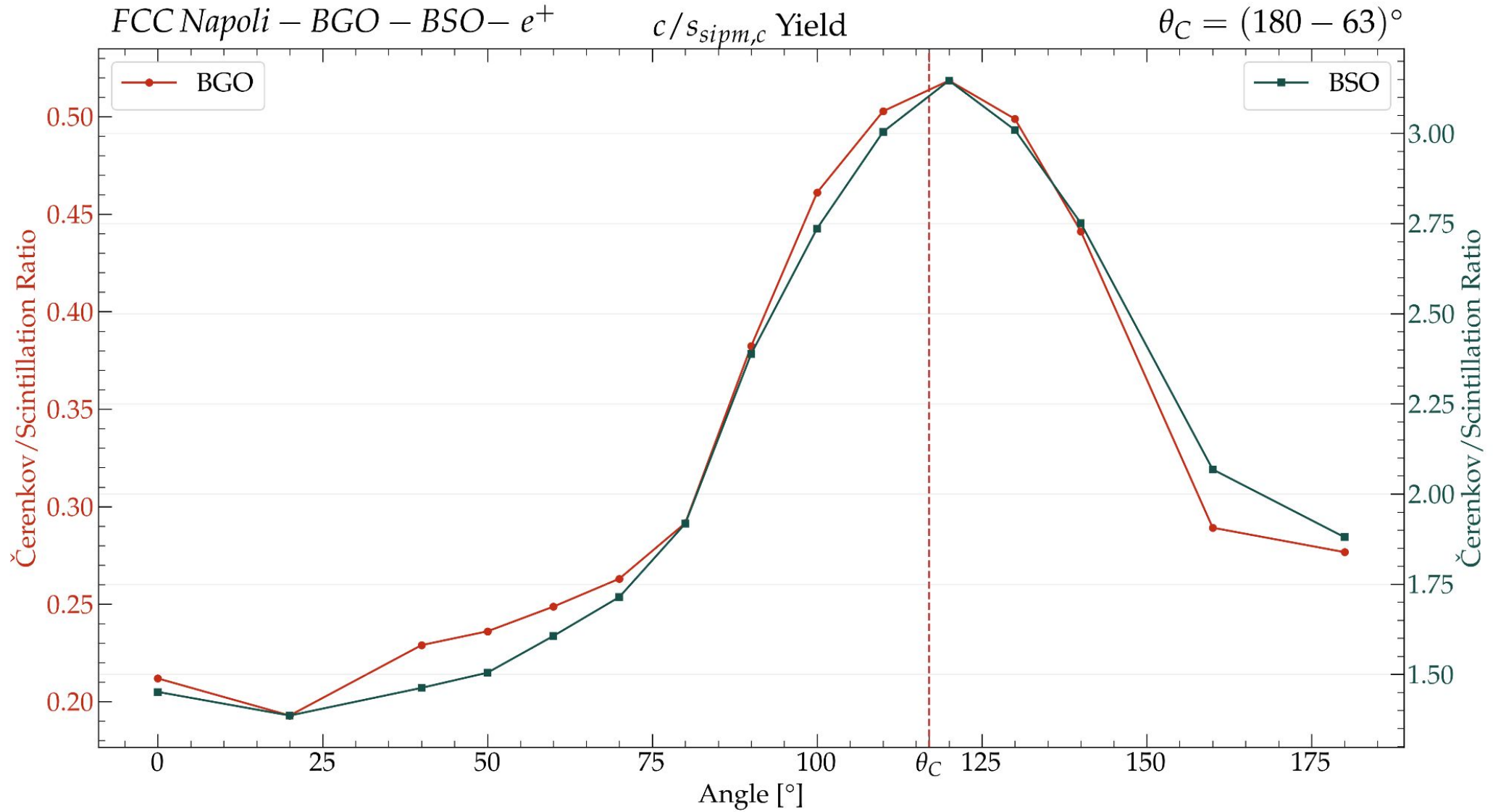
Distribuzione in Energia: Lyso Study

FCC Napoli – BGO – BSO – e^+

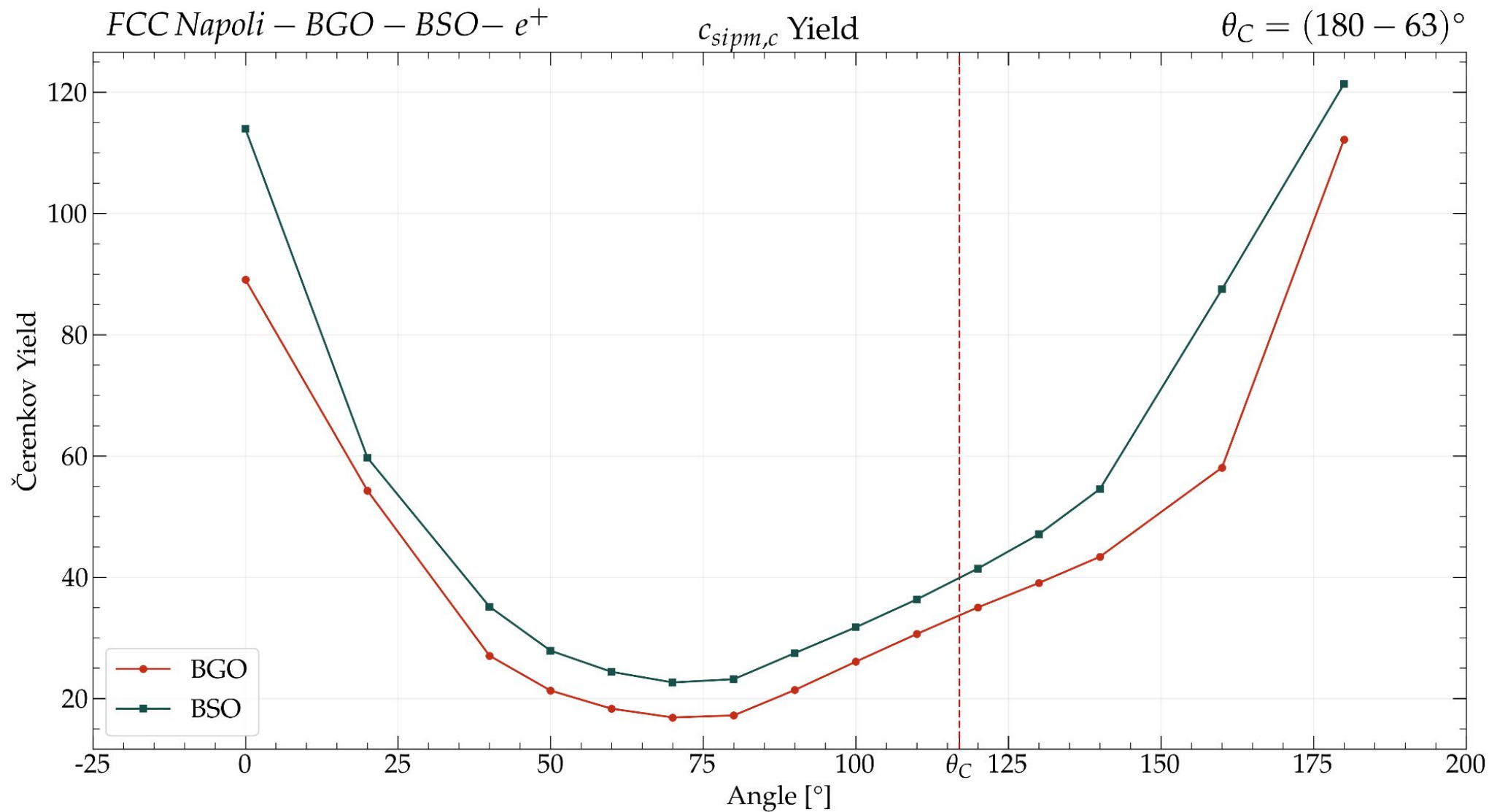
0°



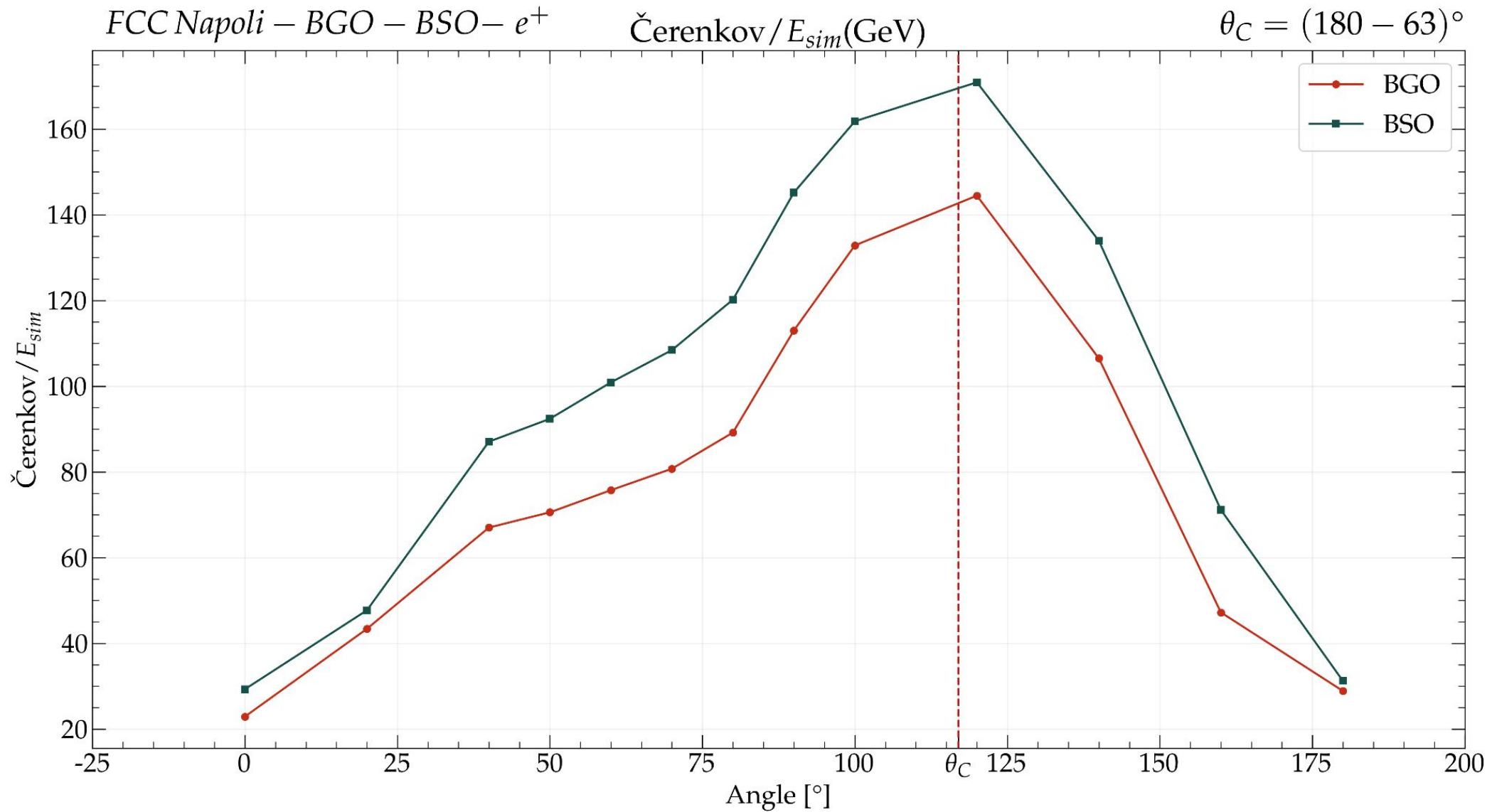
Scan in Angolo: c/s_2



Scan in Angolo: c



Scan in Angolo: c/E_MC



Scan in Angolo: c/E

