CFF local fits at EIC

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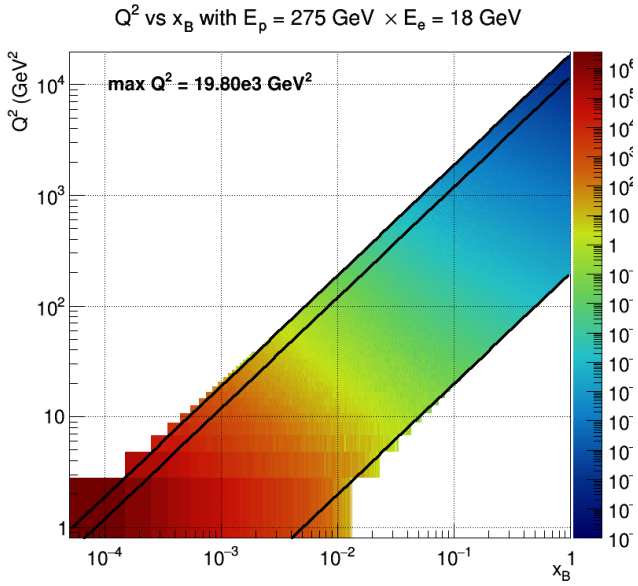
EIC proton DVCS Observables

	$\int \mathcal{L}$	Observables	$A_{e,p}$		
unpolarized	200 fb^{-1}	σ	A_{LU}		
L polarized	100 fb^{-1}	A_{UL}	A_{LL}		
T polarized	100 fb^{-1}	A_{UTx}	A_{UTy}	A_{LTx}	A_{LTy}
e^+	100 fb^{-1}	A^C	A^C_{LU}		

$$N_{events} = \int \mathcal{L} \times \sigma \times KPS$$
$$KPS = \Delta x_B \Delta Q^2 \Delta t \Delta \phi$$



$$\frac{\Delta\sigma}{\sigma} = \frac{1}{\sqrt{N_{events}}} \oplus 5\%$$

$$\Delta A_{LU} = \frac{1}{P_e}\sqrt{\frac{1-P_e^2 A_{LU}^2}{N}} \oplus 3\%_{relative} \quad P_e = 70\%$$

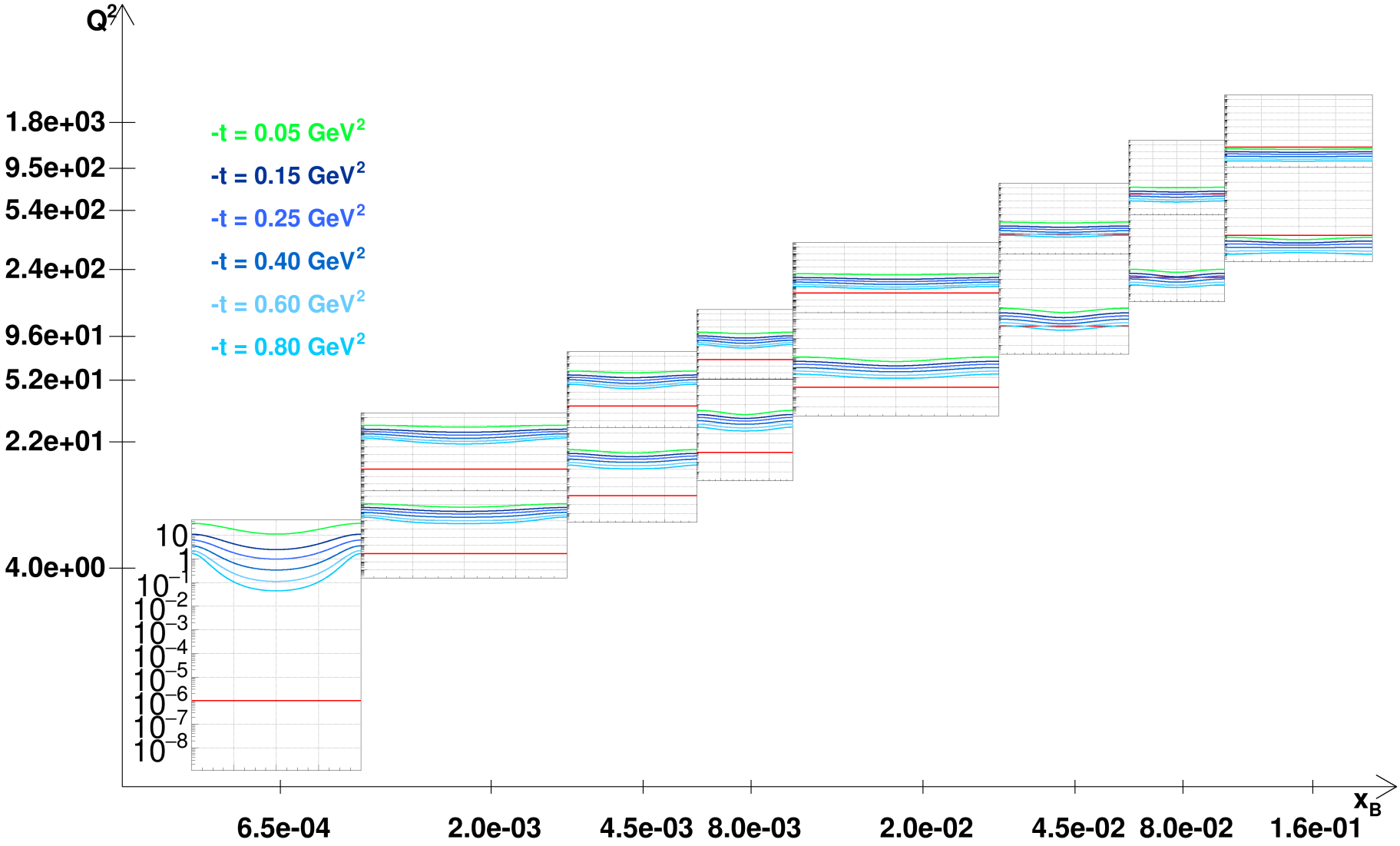
$$\Delta A_{UL} = \frac{1}{P_p}\sqrt{\frac{1-P_p^2 A_{UL}^2}{N}} \oplus 3\%_{relative} \quad P_p = 70\%$$

$$\Delta A_{LL} = \frac{1}{P_e P_p}\sqrt{\frac{1-P_e^2 P_p^2 A_{LL}^2}{N}} \oplus 3\%_{relative} \oplus 3\%_{relative}$$

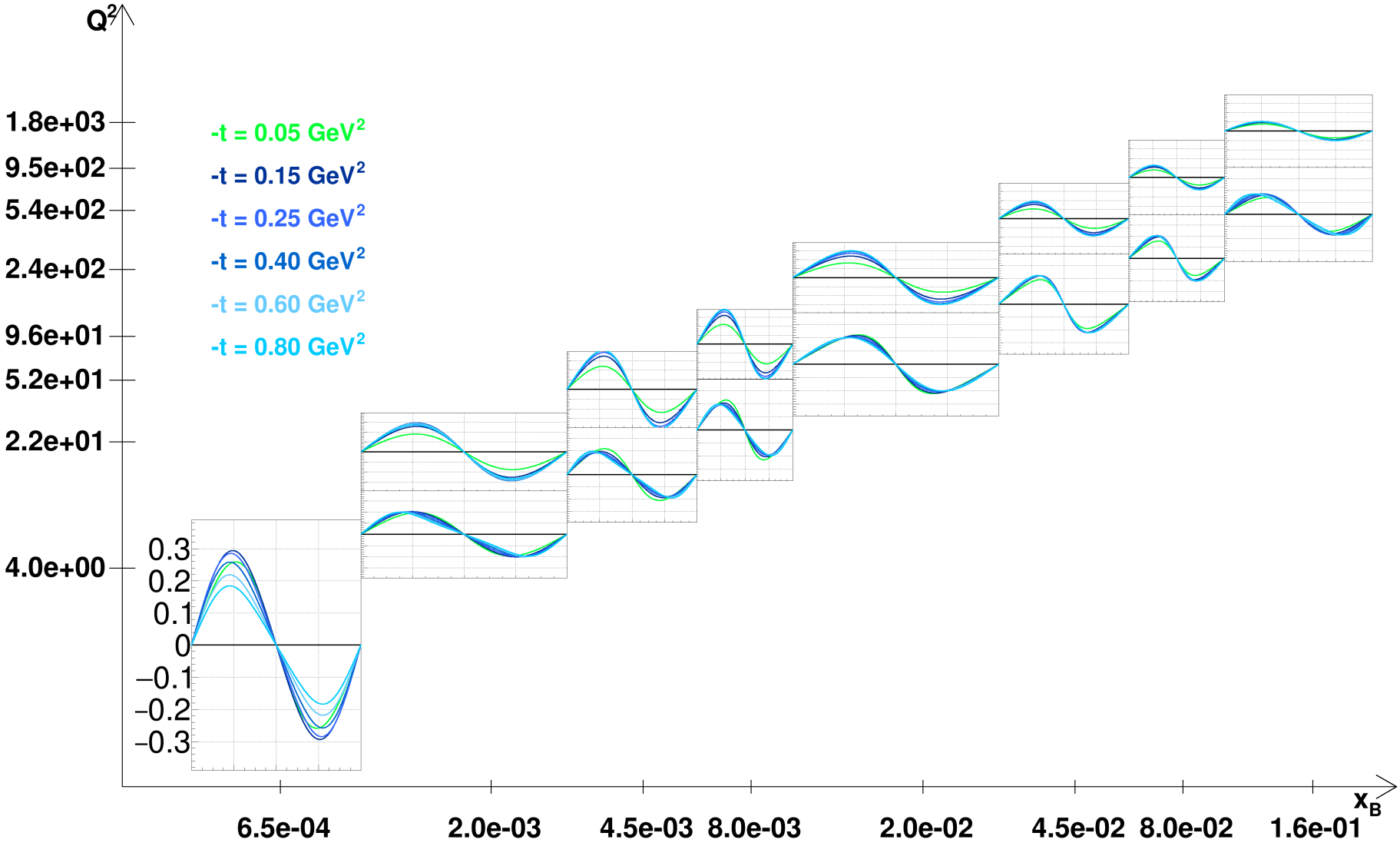
$$\Delta A_C = \sqrt{\frac{1-A_C^2}{N}} \oplus 3\%_{relative}$$

$$\Delta A_{LC} = \frac{1}{P_{e^+}}\sqrt{\frac{1-P_{e^+}^2 A_{LC}^2}{N}} \oplus 3\%_{relative} \quad P_{e^+} = 70\%$$

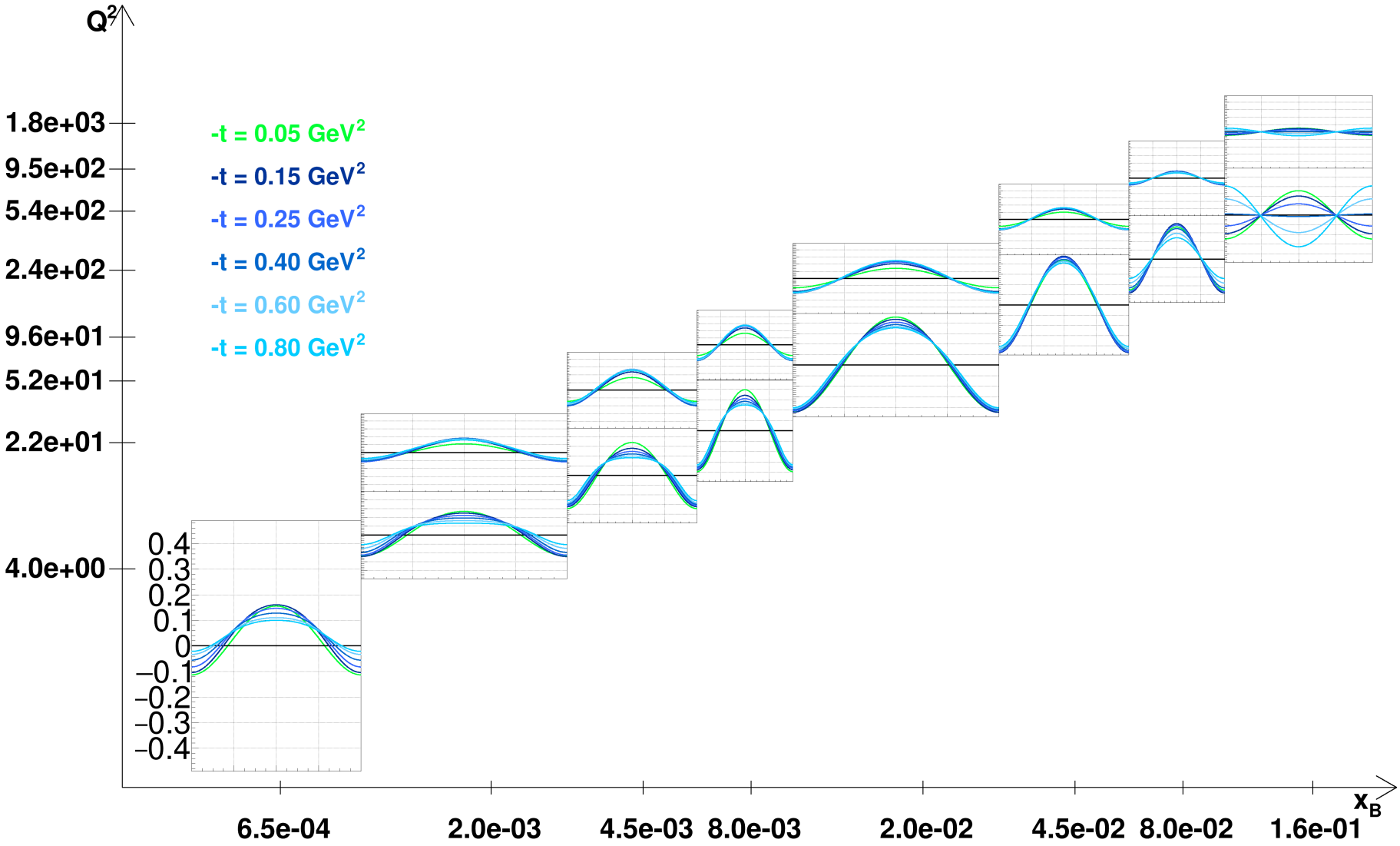
275 GeV × 18 GeV σ



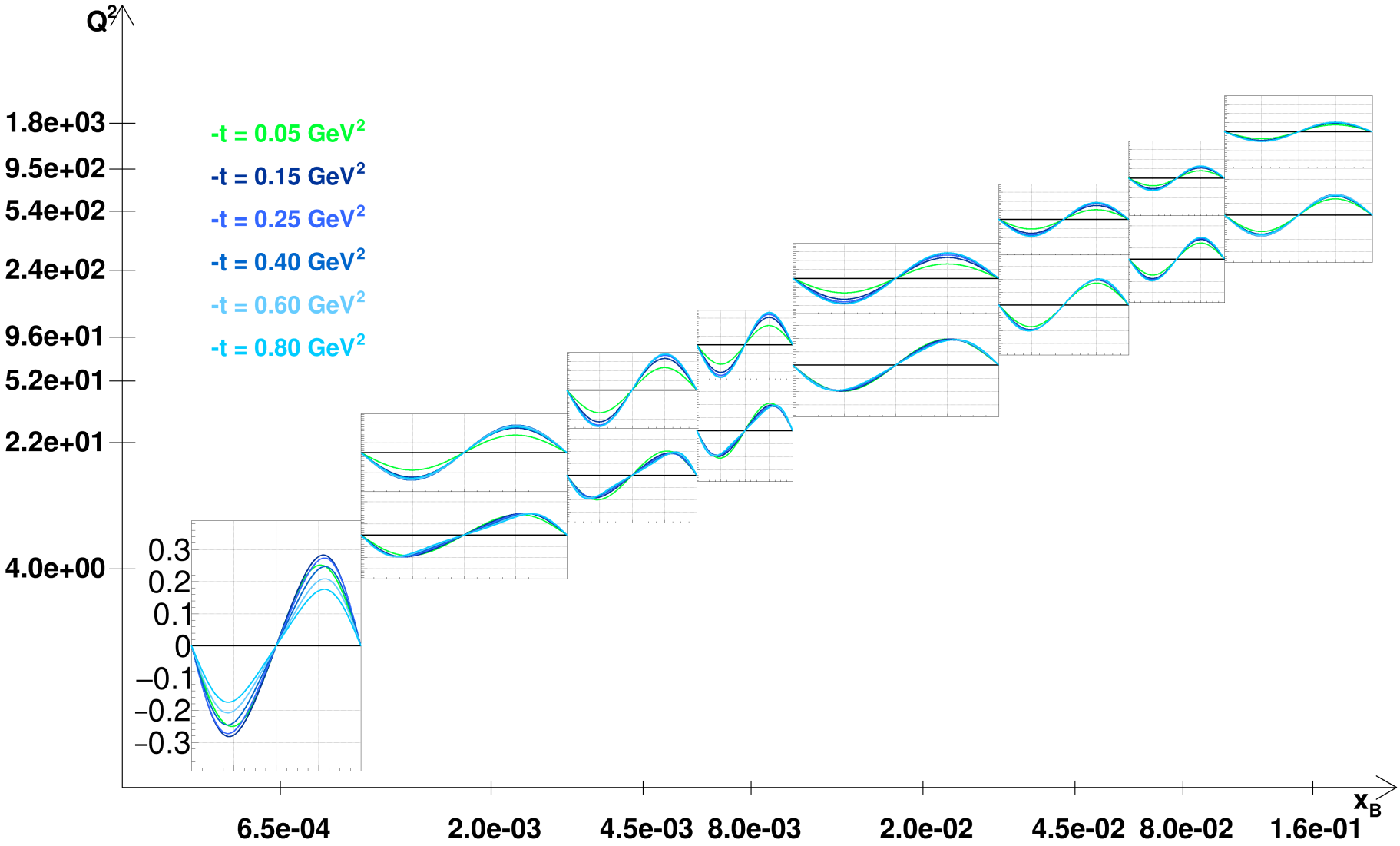
275 GeV × 18 GeV A_{LU}

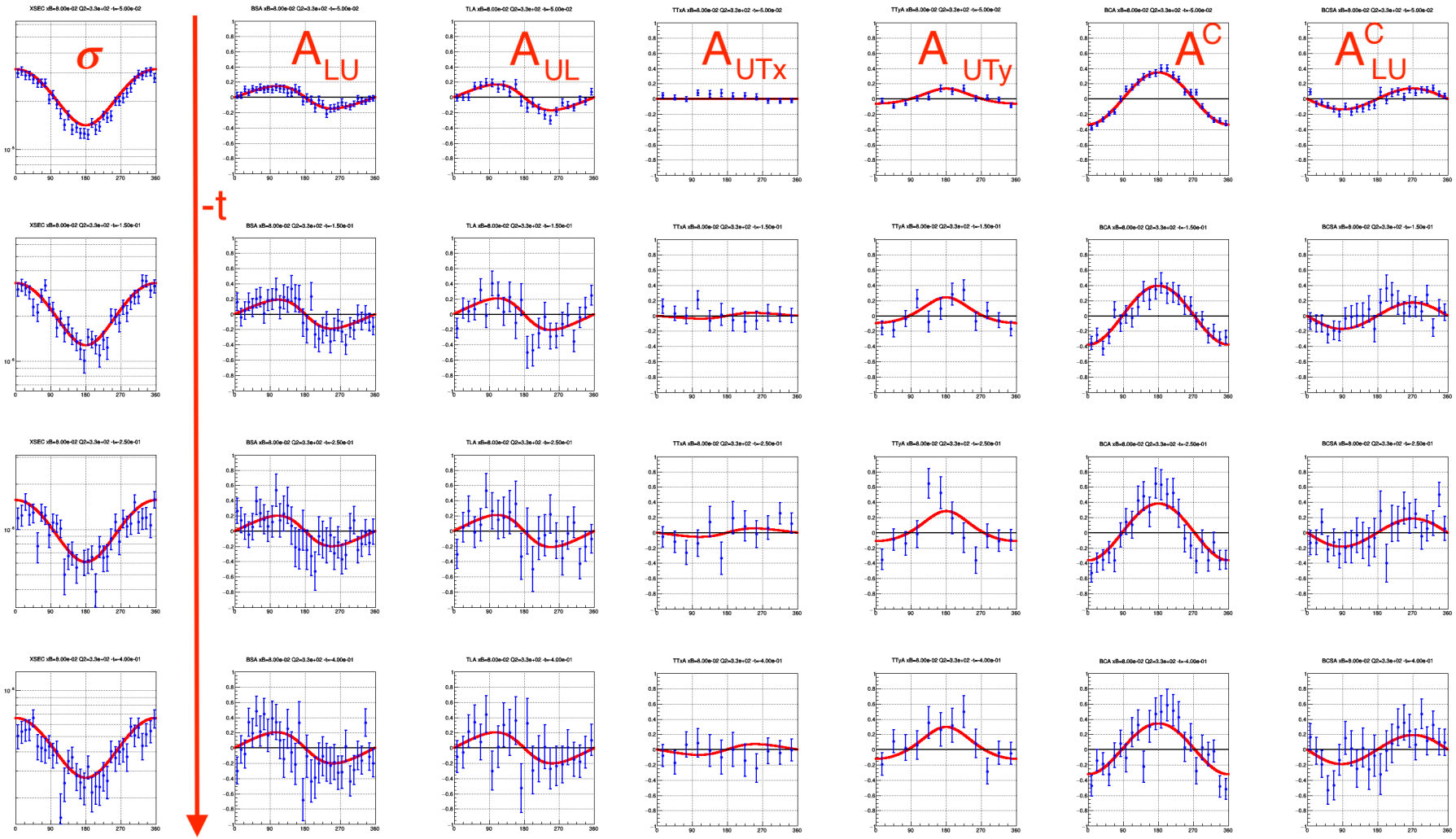


275 GeV × 18 GeV A^C

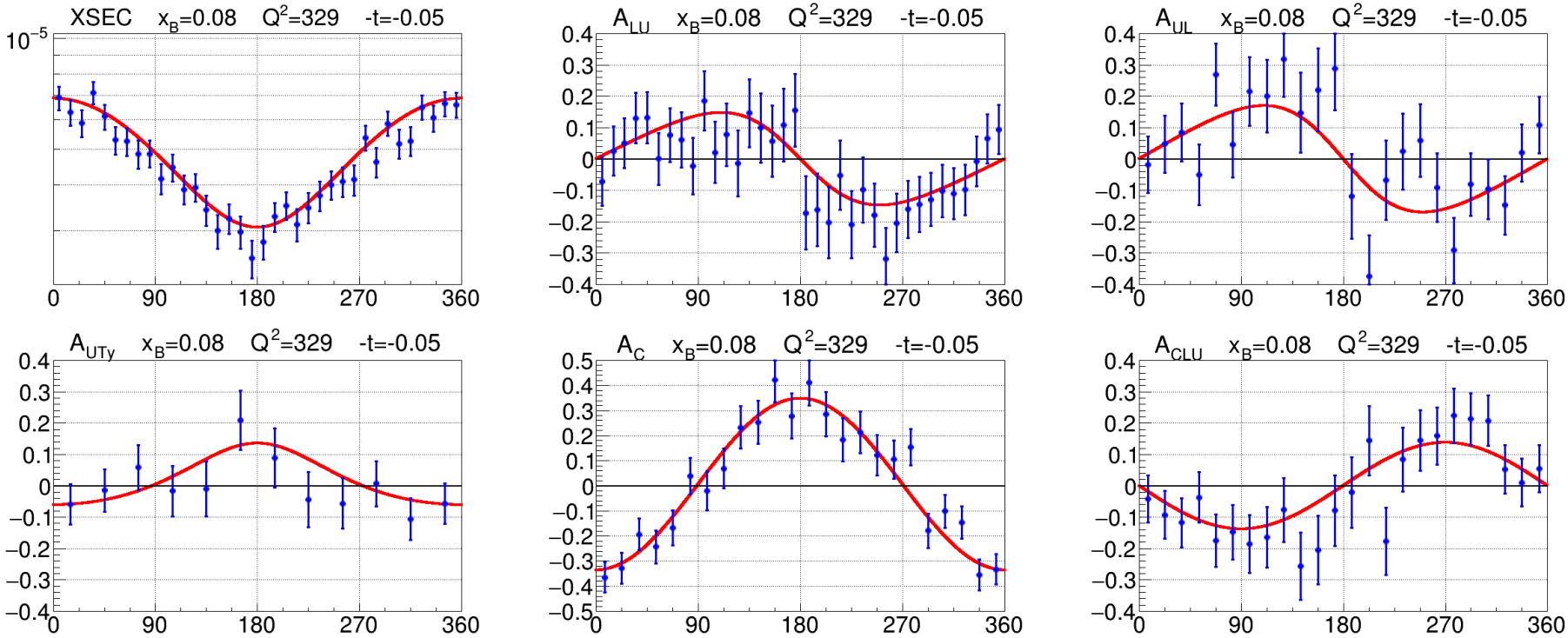


275 GeV × 18 GeV A_{LU}^{C}



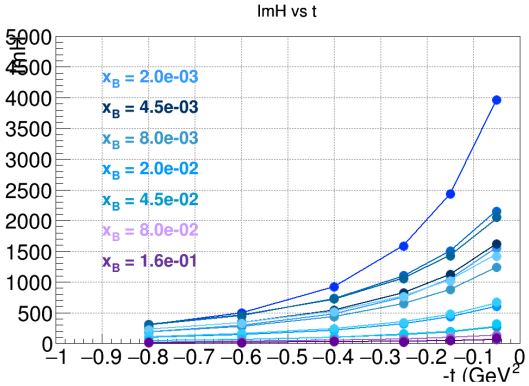


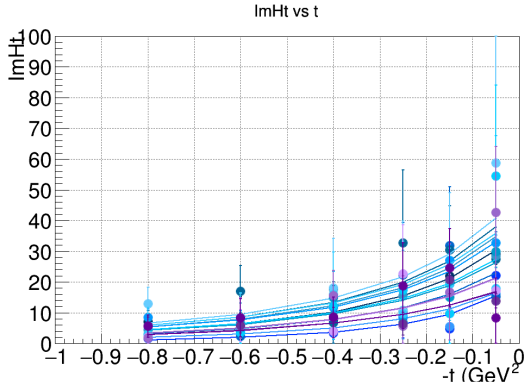
Not shown here: A_{LL} A_{LTx} A_{LTy} are small

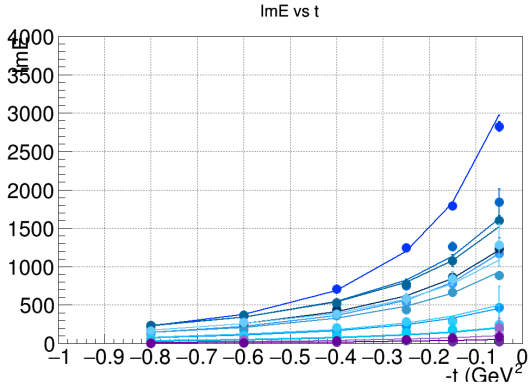


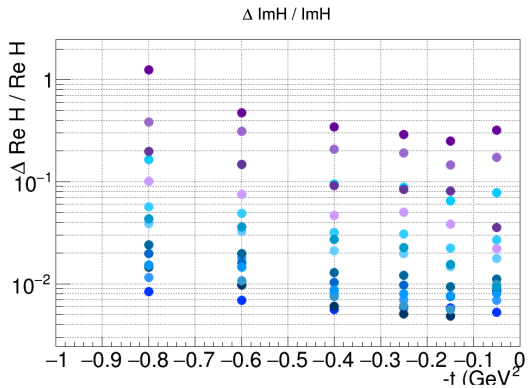
Smearing both statistics and systematics
Fit CFF wth/without to estimate systematics

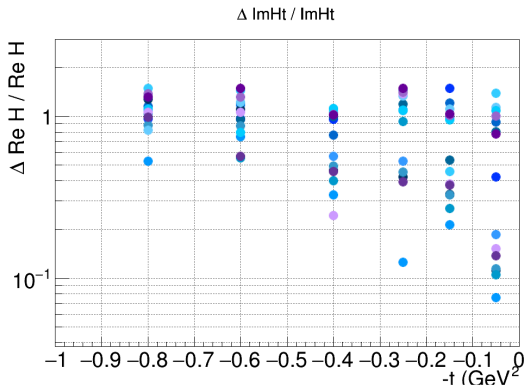
Locally extracted Im CFF

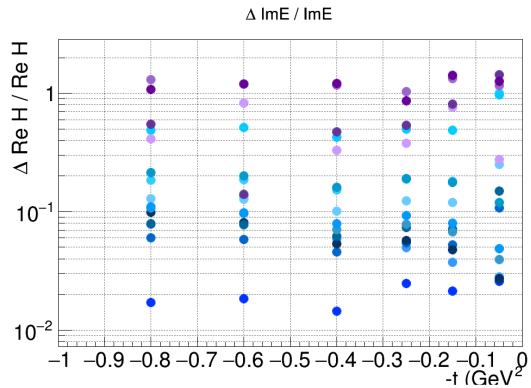




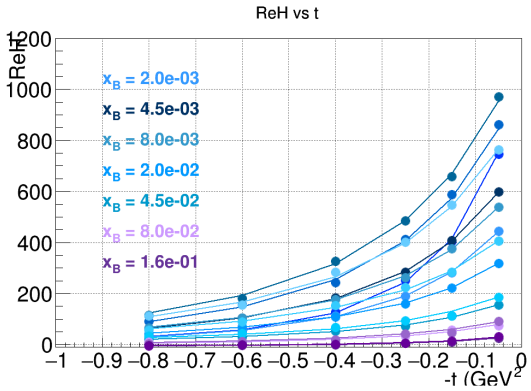


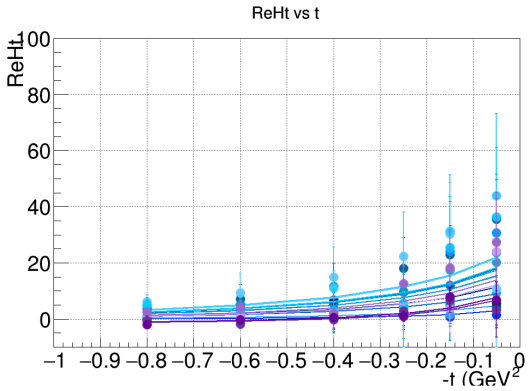


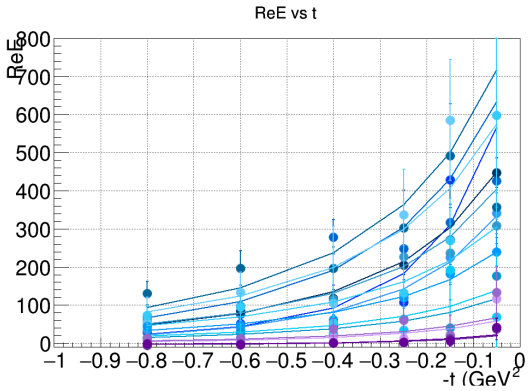


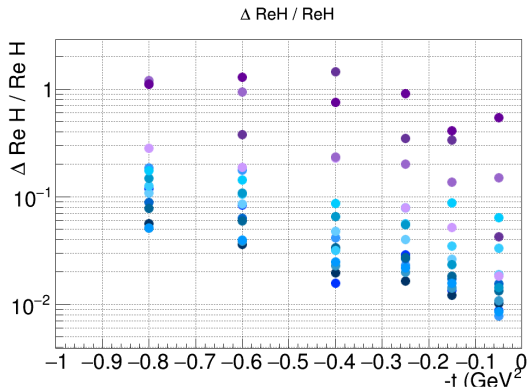


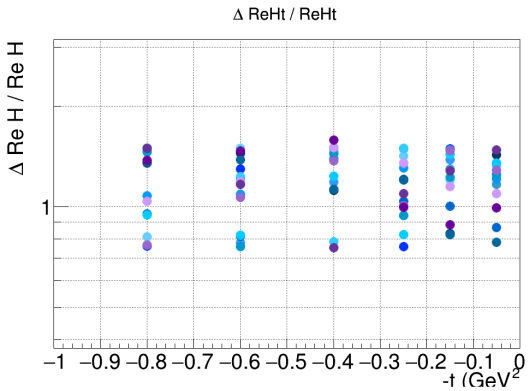
Locally extracted Re CFF

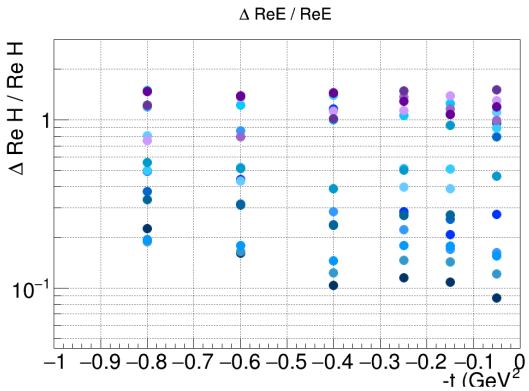












Summary / Outlook

- Framework to generate BMK observables either with CFF parameterizations or grids
- Can perform consistent local CFF fits
- Can include / remove observables such as A^C from fit

- Basis for updated event generator
- YR Goal: turn on/off detector/beam effects (resolutions/dispersions) $\Longrightarrow$ CFF