Joint T2K and DC fit within VALOR: Theta13 study

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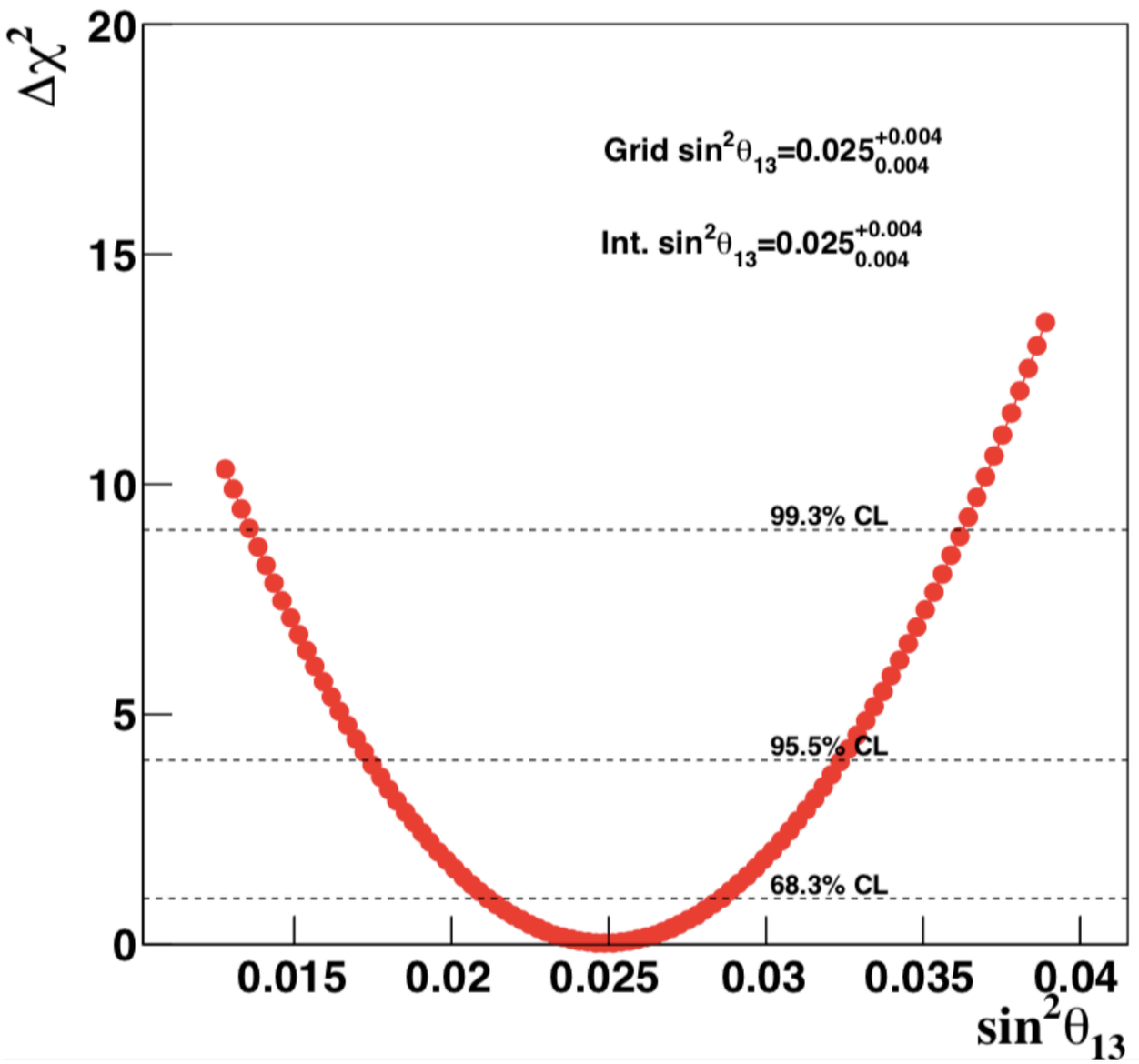
Fit features

- Two types of taking into account reactor constrain:
  - Default: penalty term (mean and sigma - DC best-fit)
    - Denoted: BF
- New: $L_{T2K} + L_{DC}$

  i.e.get χ^2directly from DC likelihood surface and sum with T2K one
  - Denoted: 1D

Used DC likelihood surface

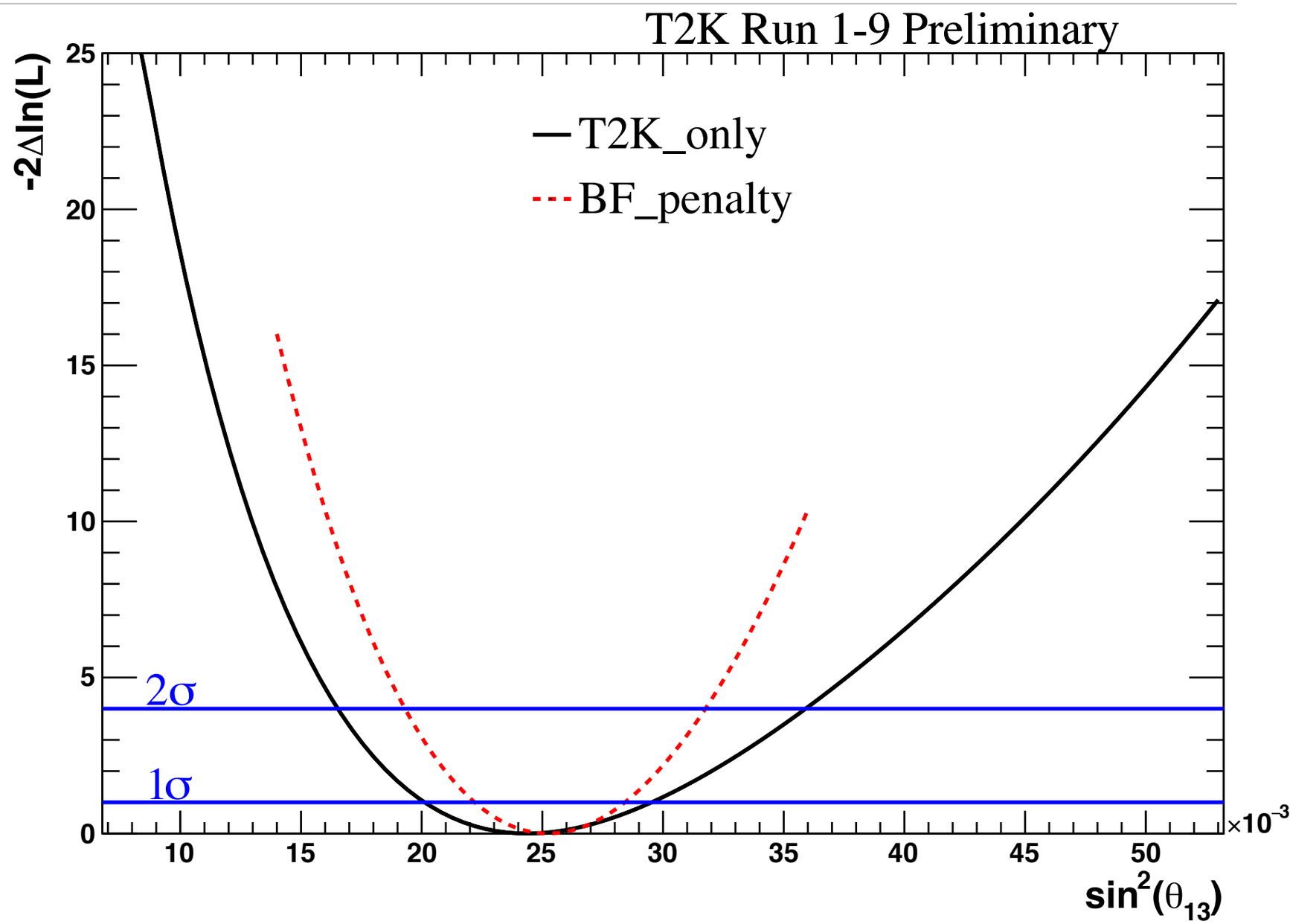


T2K_only vs. T2K+BF

- T2K only:
  - μ 0.02448
  - 1σ *interval*

    [0.021;0.0295]
- BF:
  - μ 0.02522
  - 1σ *interval*

    [0.022;0.084]

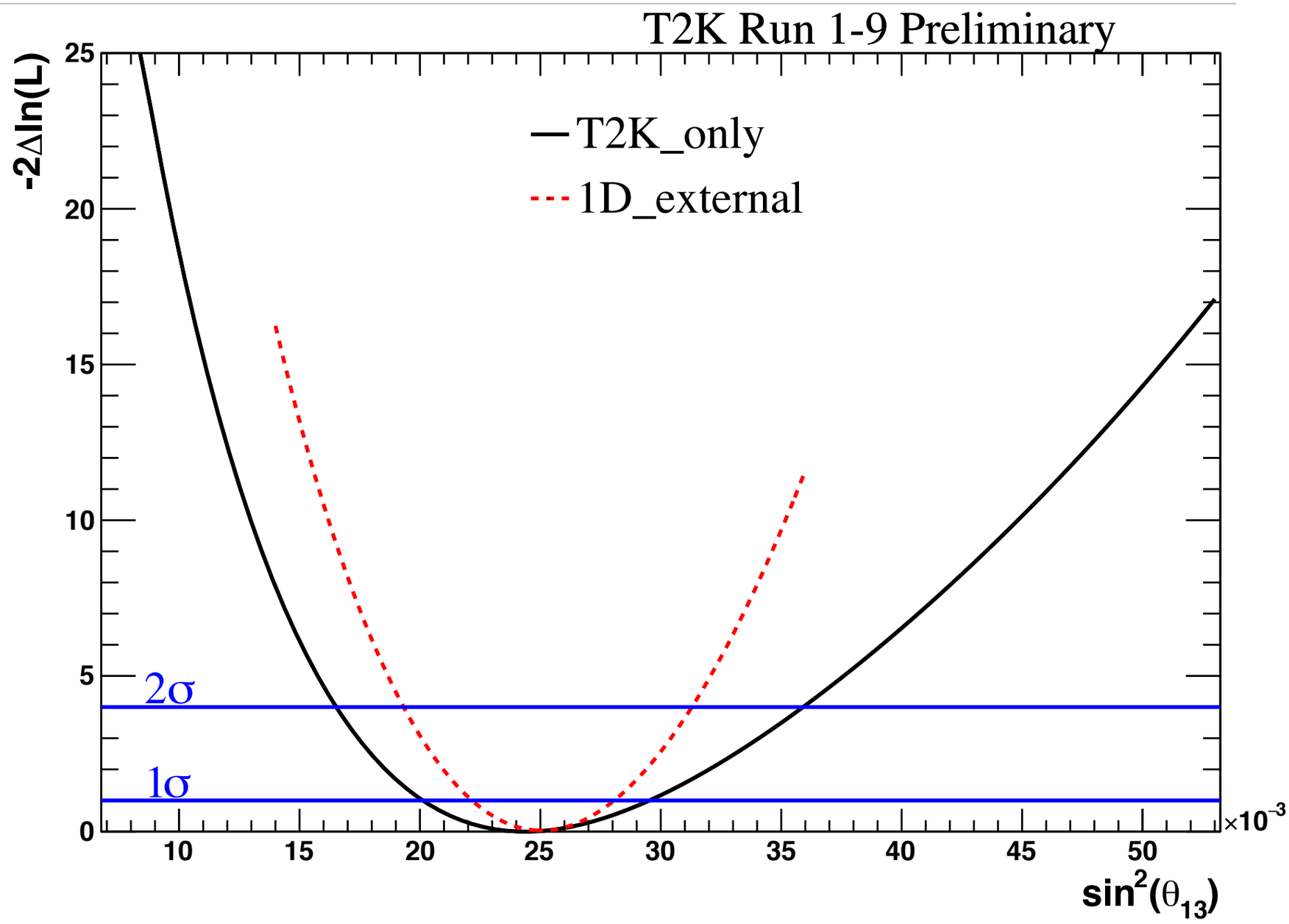


T2K_only vs. T2K+1D

- T2K-only:
  - μ 0.02448
  - 1σ *interval*

    [0.021;0.0295]
- 1D penalty
  - μ 0.025
  - 1σ *interval*

    [0.0222;0.028]

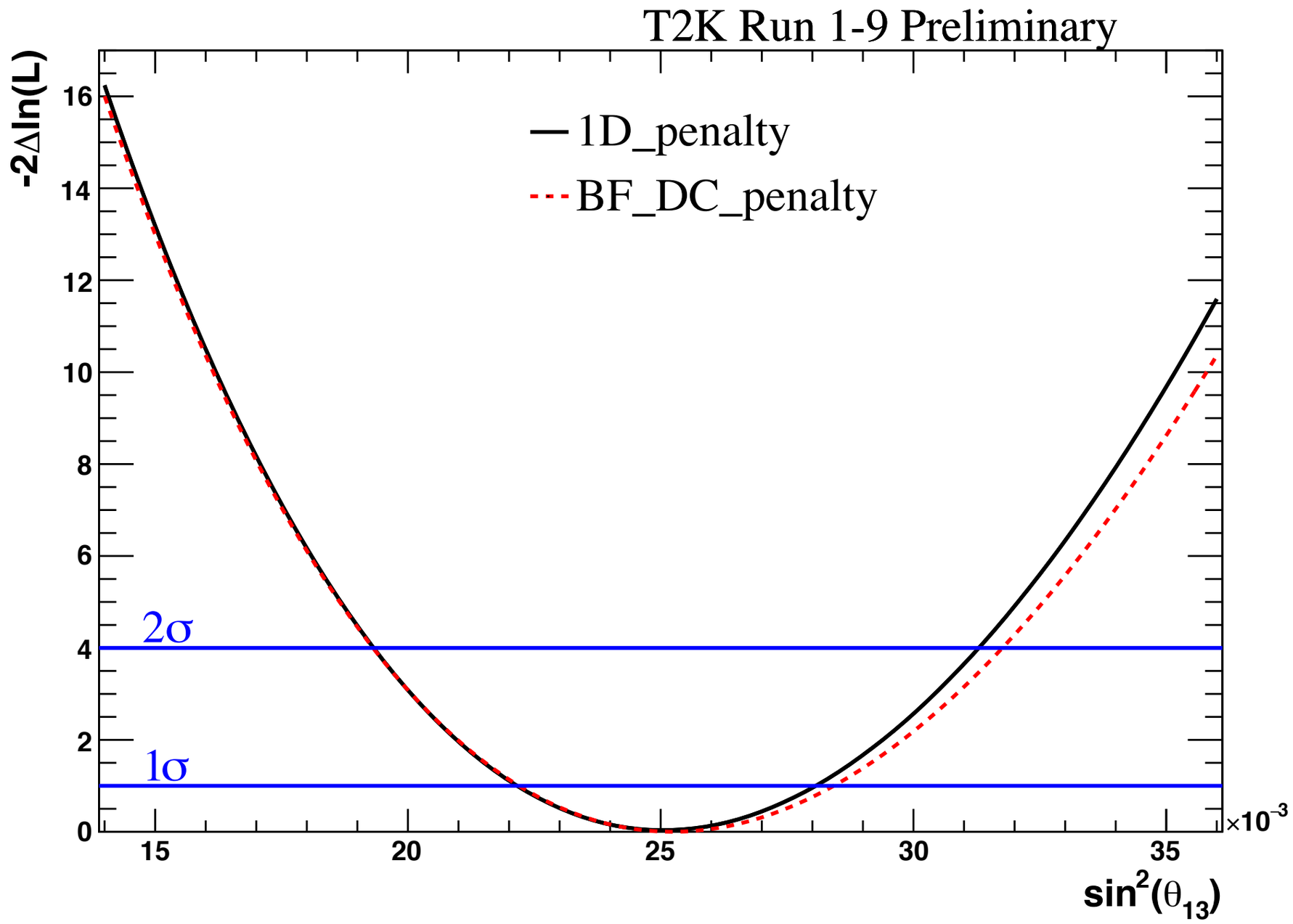


T2K+1D vs. T2K+BF

- 1D Penalty:
  - μ 0.025
  - 1σ *interval*

    [0.0222;0.028]
- BF:
  - μ 0.02522
  - 1σ *interval*

    [0.022;0.0284]



Further steps

- Produce fit : $L_{T2K} + L_{DC}$ where L_{DC} is taken from 2D likelihood surface
  - Motivation: check the effect of Δm^2 on theta13 fit
- Produce toys for dcp with various types of theta13 priors:
  - BF(default), 1D and 2D priors
- Get the DayaBay likelihood surface and perform all aforementioned tests with it

Let’s give some love to T2K analysis!