Plotting the error bands for Off-Shell function was implemented successfully and some results are summarized as follows.

As the preliminary step, three types of fits were considered as follows.

1) CJ15 (In the original CJ15 work, the parameter x_1 was fixed by considering the constraint by quark sum rule)

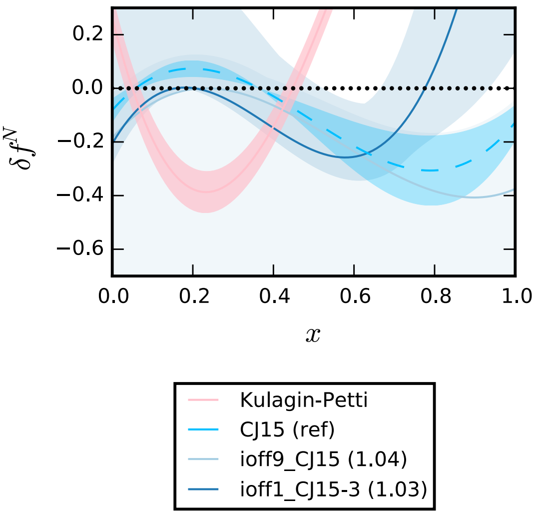
$$\delta f = N(x - x_0)(x - x_1)(1 + x_0 - x)$$

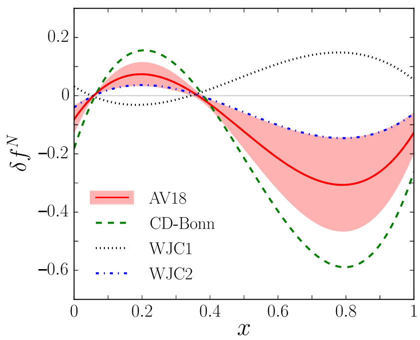
2) CJ15 with ioff9 (In this case, the parameter x_1 was kept free and purely determined by the fit) with same Off-Shell function as CJ15

$$\delta f = N(x - x_0)(x - x_1)(1 + x_0 - x)$$

3) CJ15 with ioff1 for 3-degree polynomial

$$\delta f3 = N(x - x_0)(x - x_1)(x - x_2)$$





Observations:

1) CJ15 Off-Shell function's uncertainty band is reproduced
2) The uncertainty bands for ioff9 and ioff1 are not symmetrical because the parameters x_0 and x_1 are strongly correlated negatively. For example (correlation matrices for x_0 and x_1):

i) ioff9

$$\begin{pmatrix} 1.0 & -0.99682729722690833 \\ -0.99682729722690833 & 1.0000000000000002 \end{pmatrix}$$

ii) ioff1

$$\begin{pmatrix} 1.0000000000000002 & -0.97599951214758696 \\ -0.97599951214758696 & 1.0000000000000002) \end{pmatrix}$$

We can understand this asymmetry, using a generic function with negative linear correlation with a coefficient c near the solutions for x_0 and x_1.

$$\delta f(test) = N(x - x_0 - c)(x - x_1 + c)$$

$$or$$

$$\delta f(test) = N(x - x_0 + c)(x - x_1 - c)$$