$B^+ \rightarrow \rho^+ \rho^0$ status

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Working on fitter

Start from the already existing framework. Classes and functions will need to be modified, but no need to write it from scratch.

Goals:
- fixed source files, touch only input config file (cfg)
- cfg written in a user-friendly way (prone to less human error)
- cfg that allows for nD analytical shapes
- don't pass fixed parameters to Minuit

deadline end Sept.

+ parallel improvement/cleaning of the code (more readable, less errors)

Steps:
- write example of new cfg ✔
- define functions and structures to read it properly ∼
- write the FCN to pass to minuit with the fit parameters ▪▪▪
- write the plotter function ▪▪▪

Changes in cfg file

Current

```
Note fit_6d
Data /eos/infnts/belle2/users/rmanfr
Channel rhorho_Acp
Histograms /eos/infnts/belle2/users/
Dimensions&Components 6 8
Pdfs h3D_sig_lo_dE_mpl_chpl func_tri
Indices of pdfs parameters p_0 p_8 p
Make Toy: 0
1. make toy - 1, fit data - 0;
Fit_method 5
ML - 1, Extended ML - 0, B2 Acp ML -
Plot_projection 1
chargeIntPlotsFlag 0
stackedPlotFlag 1
sigEnhanceFlag 0
SCFflag 2
SCFuncty 0.04
rhopipiFlag 0
rhopipiUncty 50
LegendFlag 2
Belle2Flag 1
BlindFlag 0
WeightFlag 1
Parameters 109
0    0.041616 0 0 1 frac1_sig_lo_cs f
1    0.0805625 0 0 1 frac2_sig_lo_cs
2    0.711142 0 -10 10 mean1_sig_lo_c
3    0.663264 0 0 10 sigma1_sig_lo_cs
             ...
100 0.5 0.05 0 0 frac_sig_pos frac_s
101 24.0 0.5 0 0 BF BF
102 0.95 0.05 0 0 frac_long frac_lon
103 0.3 0.01 0 0 scf_frac scf_frac
104 1250 10 0 0 bb_yield bb_yield
105 40 5 0 0 f0_yield f0_yield
106 50 5 0 0 rhopipi_yield rhopipi_y
107 60 5 0 0 a1pi_yield a1pi_yield
108 1150 0 0 0 cont_yield cont_yield
```

New

```
Note fit_6d\
Data /eos/infnts/belle2/users/rmanfred/rhorho/b2dkpp0_
Channel rhorho_Acp\
Histograms /eos/infnts/belle2/users/rmanfred/rhorho/b2
#
variables deltae cs mrho coshel mrho0 coshel0\
components sig_lo sig_tr scf bb f0 rhopipi a1pi cont\
#
h3D_sig_lo_eE_mpl_chpl   deltae mrho coshel\
func_triple_gauss         cs
   0.041616 0 0 1 frac1_sig_lo_cs frac1_sig_lo_cs
   0.0805625 0 0 1 frac2_sig_lo_cs frac2_sig_lo_cs
   0.711142 0 -10 10 mean1_sig_lo_cs mean1_sig_lo
   0.663264 0 0 10 sigma1_sig_lo_cs sigma1_sig_lo_cs
   -1.48023 0 -10 10 mean2_sig_lo_cs mean2_sig_lo_cs
   2.11236 0 0 10 sigma2_sig_lo_cs sigma2_sig_lo_cs
   0.710439 0 -10 10 mean3_sig_lo_cs mean3_sig_lo_cs
   1.59232 0 0 10 sigma3_sig_lo_cs sigma3_sig_lo_cs\
h2D_sig_lo_m0_cs0         mrho0 coshel0\
#
             ...
free_parameters
   0.5 0.05 0 0 frac_sig_pos frac_sig_pos\
   24.0 0.5 0 0 BF BF\
   0.95 0.05 0 0 frac_long frac_long\
   0.3 0.01 0 0 scf_frac scf_frac\
   1250 10 0 0 bb_yield bb_yield\
   40 5 0 0 f0_yield f0_yield\
   50 5 0 0 rhopipi_yield rhopipi_yield\
   60 5 0 0 a1pi_yield a1pi_yield\
   1150 0 0 0 cont_yield cont_yield\
#
#make toy - 1, fit data - 0;
Make Toy: 0\
#ML - 1, Extended ML - 0, B2 Acp ML - 5;
Fit_method 5\
Plot_projection 1\
chargeIntPlotsFlag 0\
sigEnhanceFlag 0\
SCFflag 2\
SCFuncty 0.04\
rhopipiFlag 0\
rhopipiUncty 50\
LegendFlag 2\
Belle2Flag 1\
BlindFlag 0\
WeightFlag 1\
# That's all folks!
```

Pdfs and param indices on one line

Pdfs defined in blocks with corresponding params below
Easier to incorporate nD pdfs for each component

Only yield/BF params at the end

Loooong list of fixed and free params passed all to Minuit

Current challenge: **read** and **loop on the model** to evaluate pdf in each point