
NPP Update Jan 20

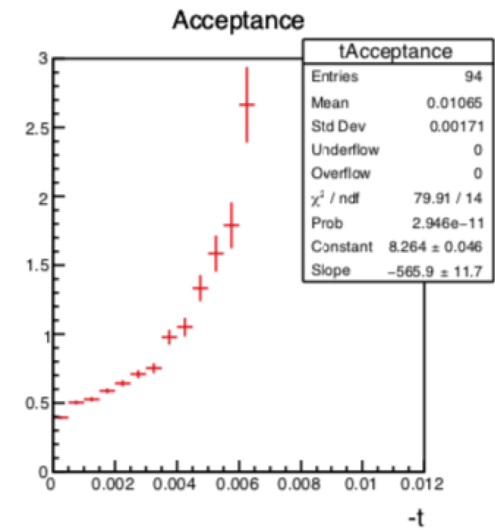
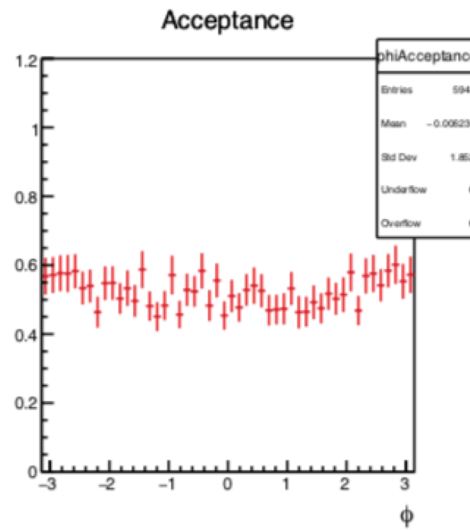
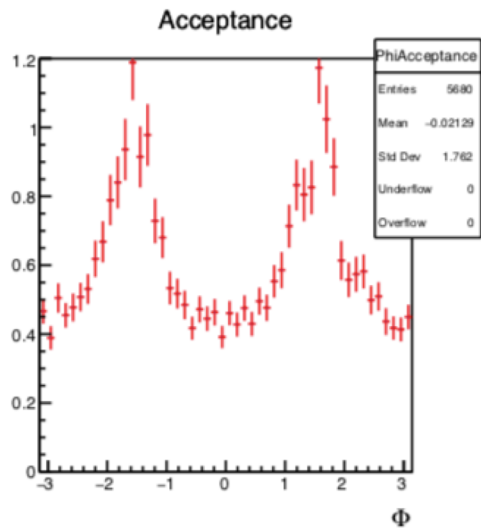
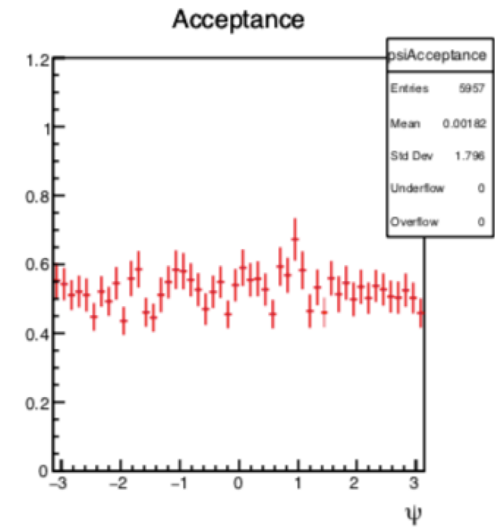
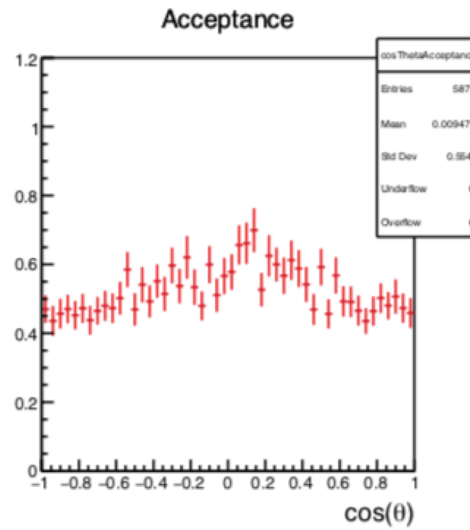
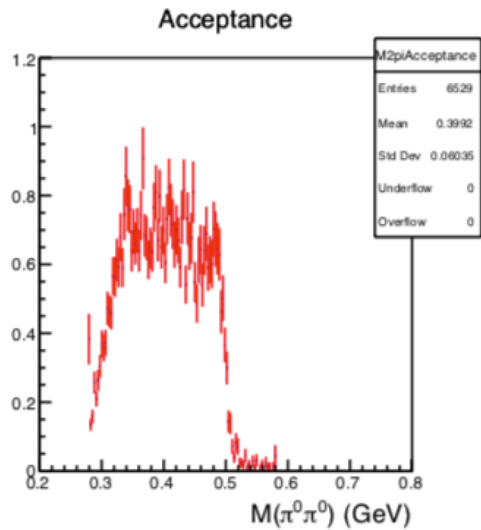
- Update event generation and processing with GEANT4
- Comparisons with GEANT3
- Acceptance
- Resolution effects

See GlueX-doc-3373

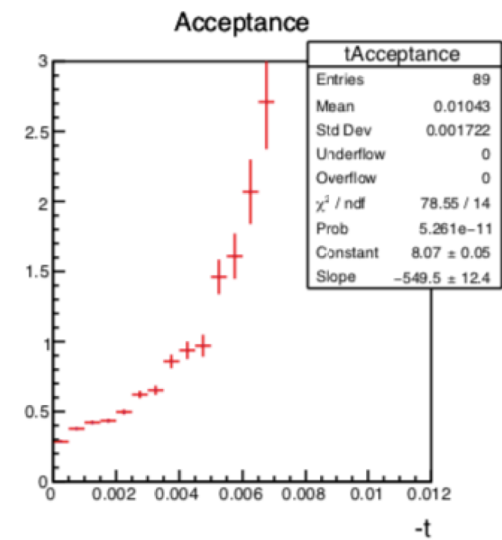
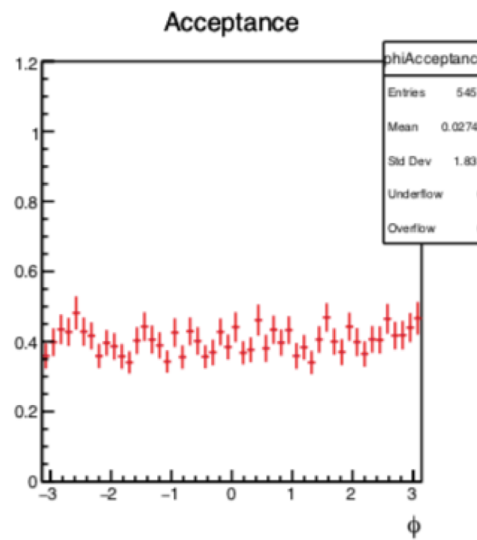
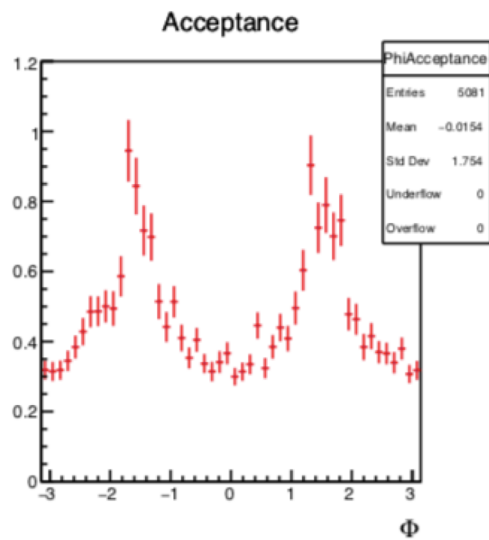
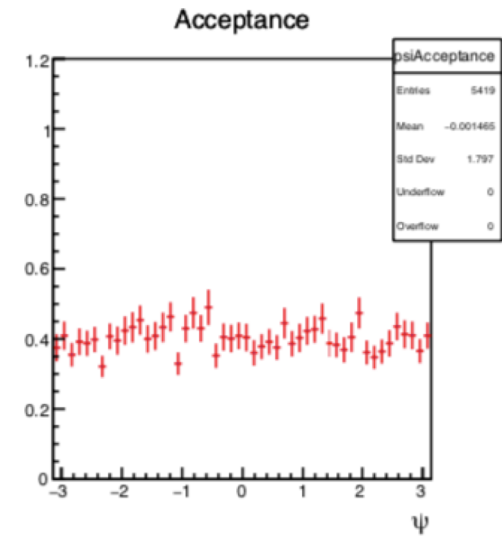
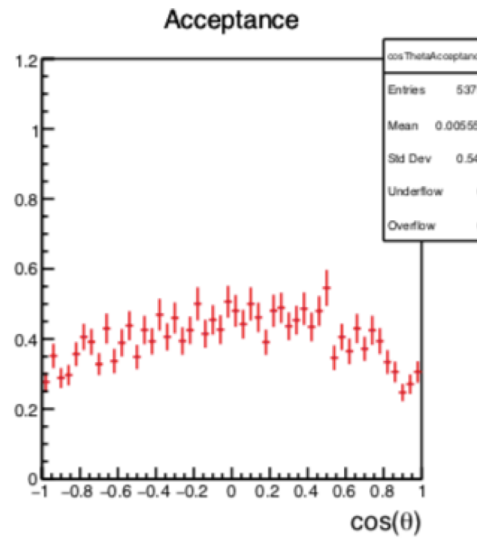
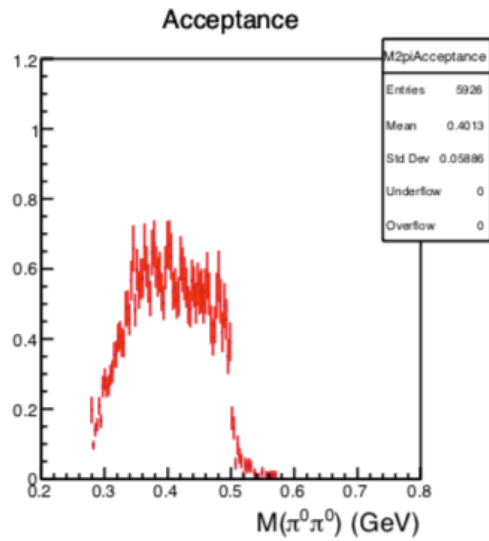
Elton Smith

Jan 17, 2020

Acceptance GEANT4



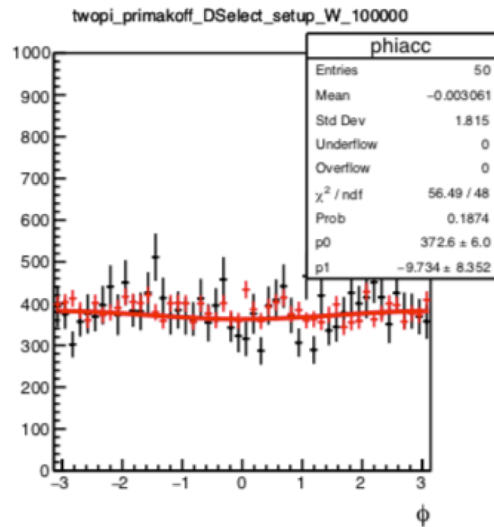
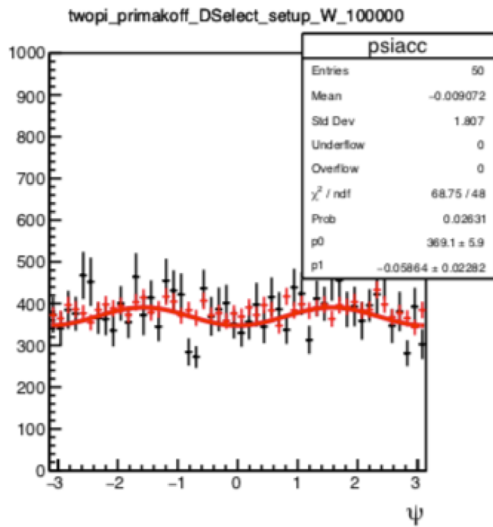
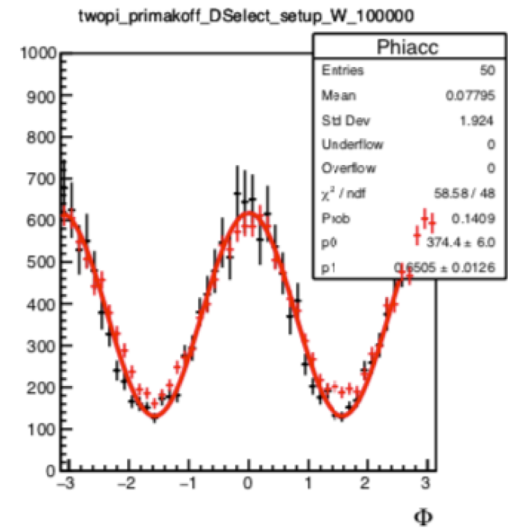
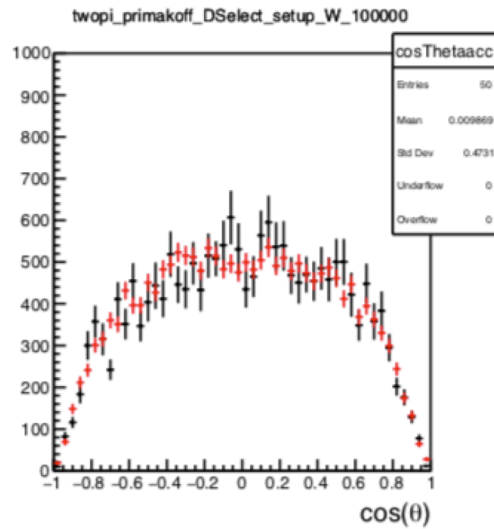
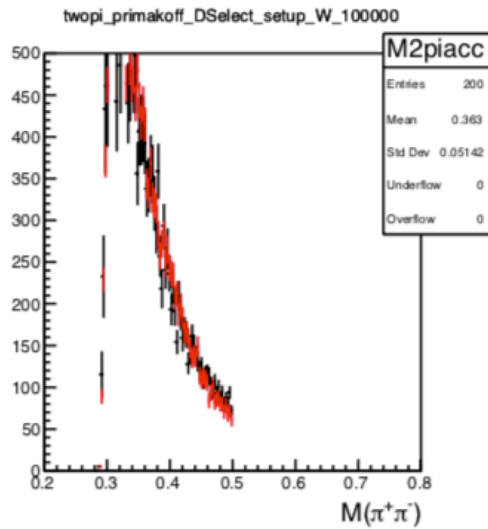
Acceptance GEANT3



Data sets

- "Data": In MC these are events generated according to physics amplitudes and processed through HDGeant/mcsmear/Dselector
- Phase Space: Generated PS uniformly over variables of interest (e.g. angles)
- Phase Space Accepted: Generated PS and processed through HDGeant/mcsmear/Dselector
- Compare: "Data" to PS Accepted weighted by amplitudes

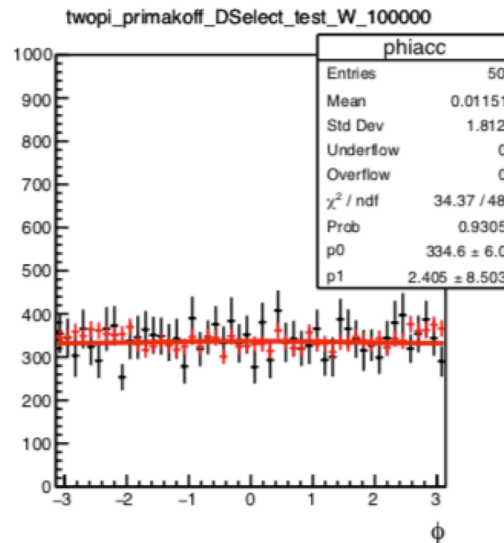
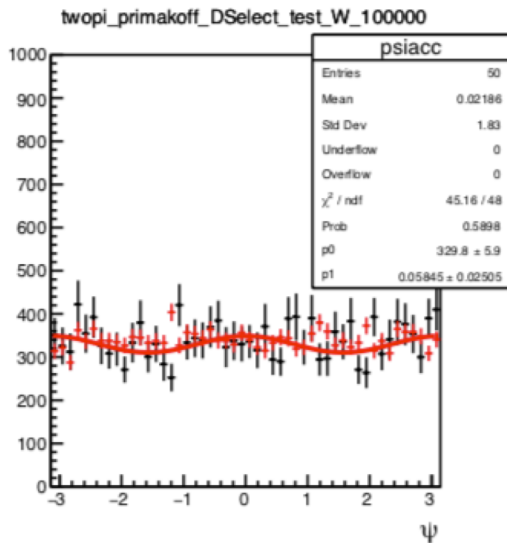
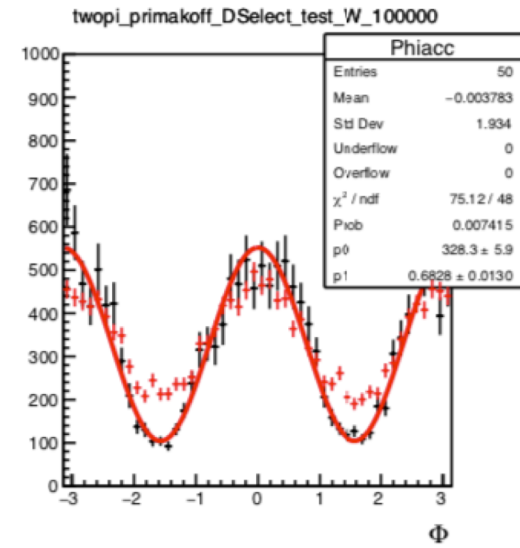
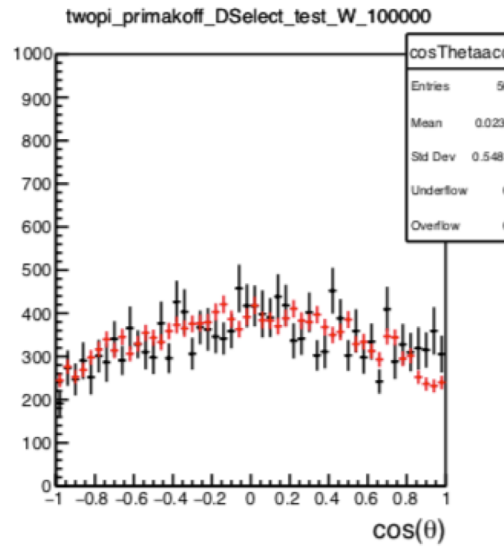
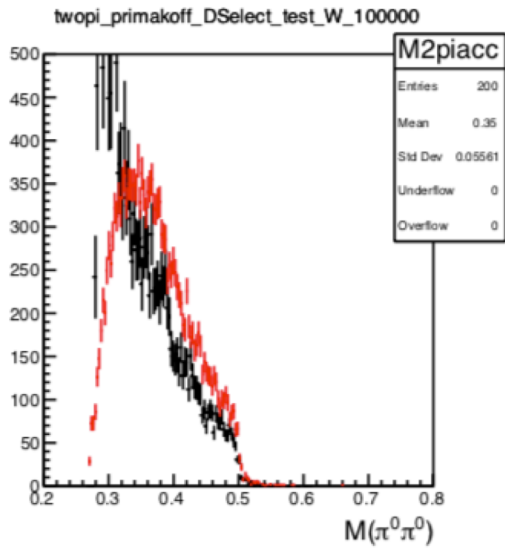
CPP Amp fit comparison (s-wave)



AmpTool Fit

g1V00_re = -0.043 ± 0.047
g1V00_im = -0.730 ± 0.004
g1V00s_re = 140.411 ± 58.624
g1V00s_im = -247.173 ± 23.791
g1V11_re = 190.905 ± 19.145
g1V11_im = 0.000 ± 0.000
g1V10_re = -84.605 ± 24.722
g1V10_im = 7.530 ± 11.125
g1V1-1_re = -262.253 ± 28.104
g1V1-1_im = 65.380 ± 26.771

NPP Amp fit comparison (s-wave)



AmpTool Fit

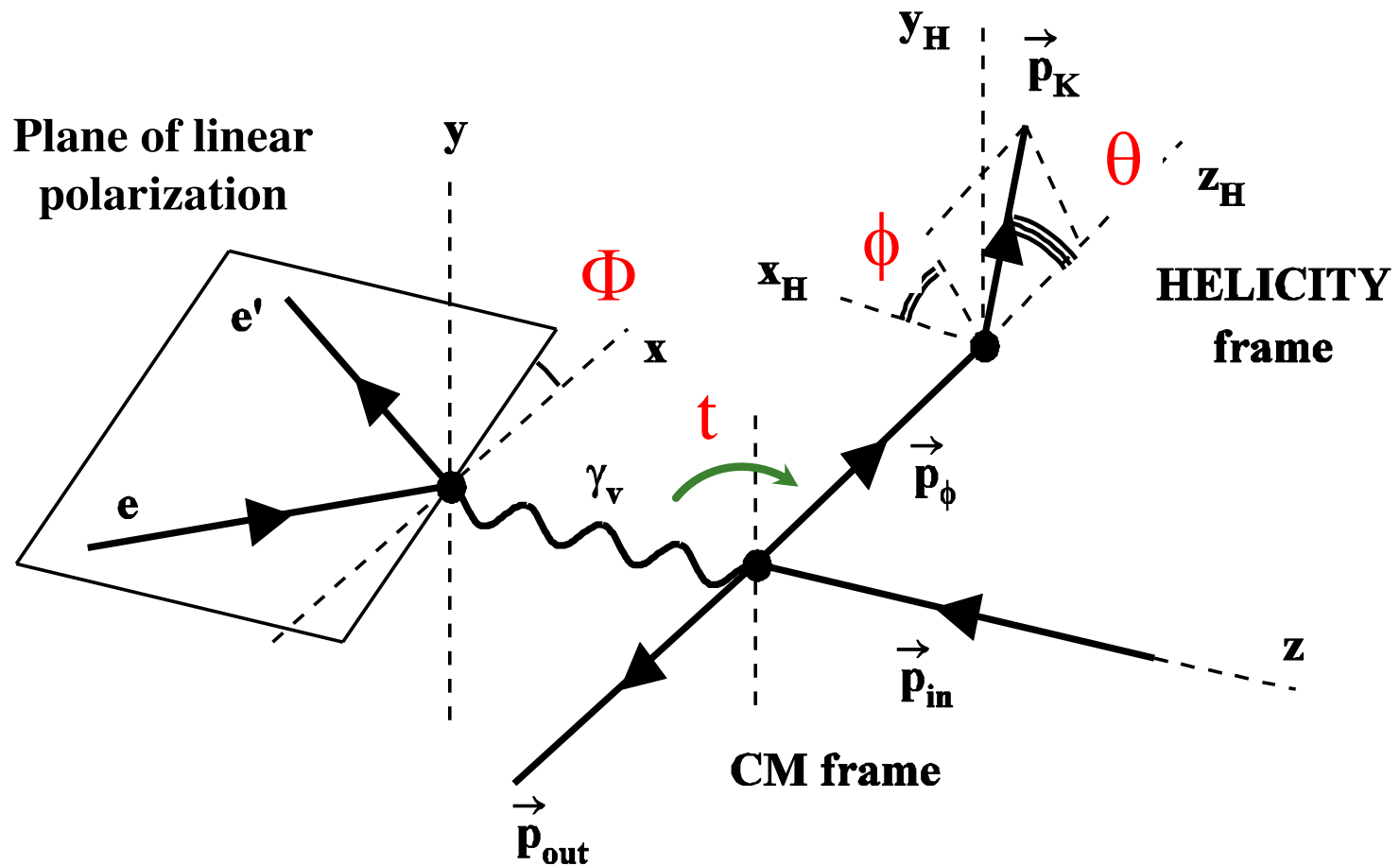
$g_{1V0_re} = 3.342 \pm 0.013$
 $g_{1V0_im} = 0.000 \pm 0.000$

Backup

Kinematics

$$\psi = \Phi - \phi$$

\vec{y} = production normal



$\gamma Z \rightarrow \pi^+ \pi^- Z$: Accepted

$$\mathcal{S} \sim \sigma(W, t) \times \mathcal{I}(\Phi)$$

$$\mathcal{P}\mathcal{S} \sim \text{flat}$$

