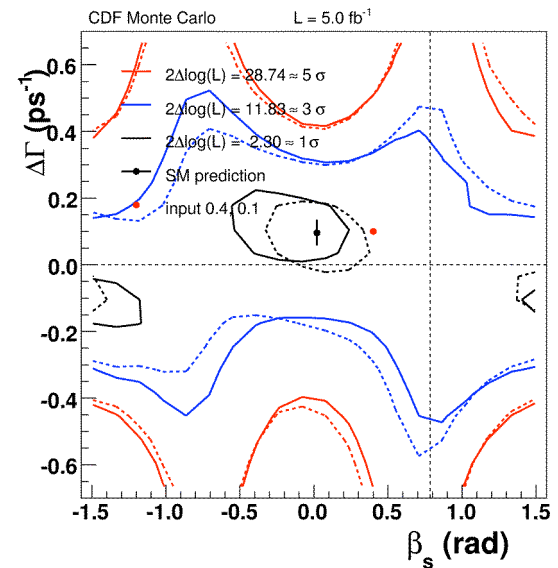
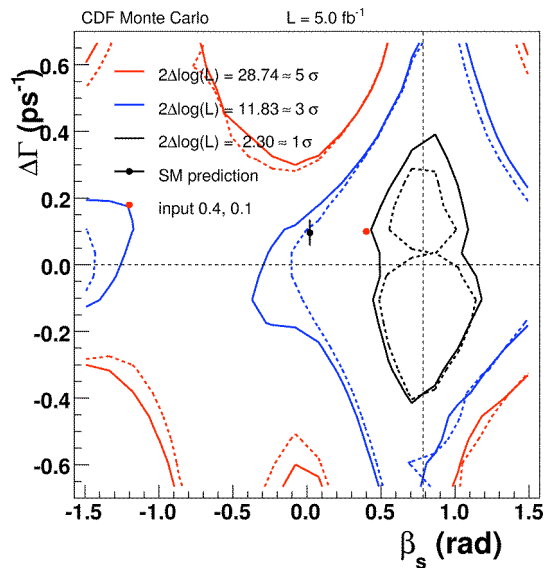
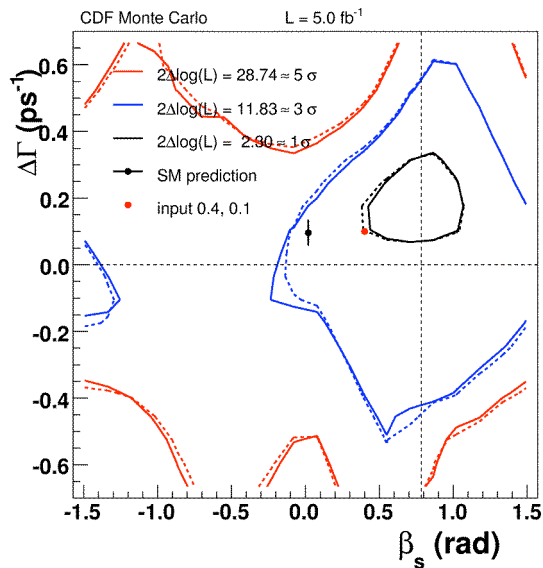
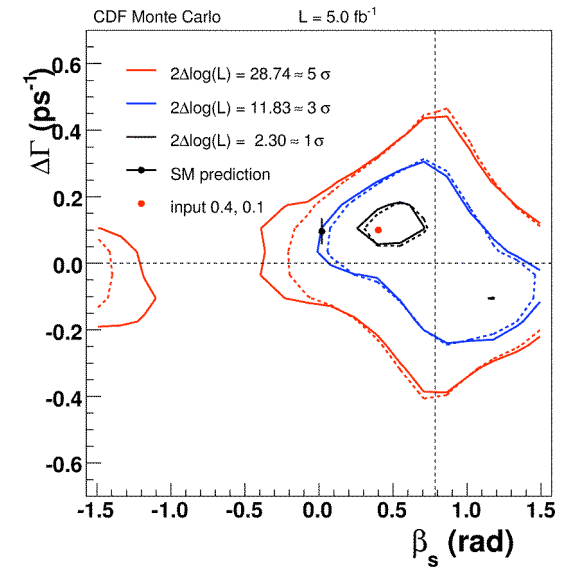
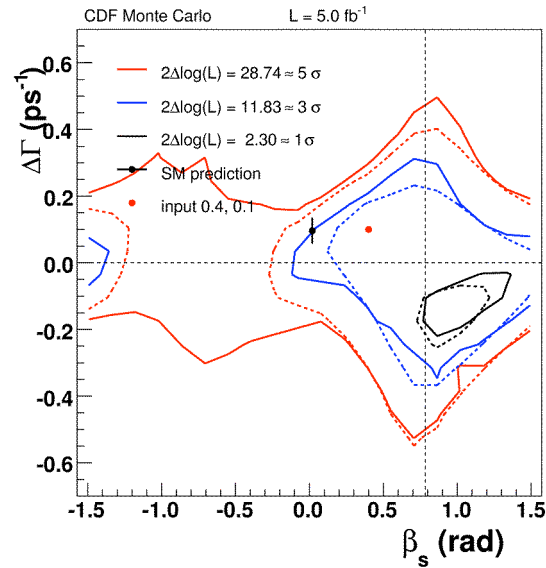
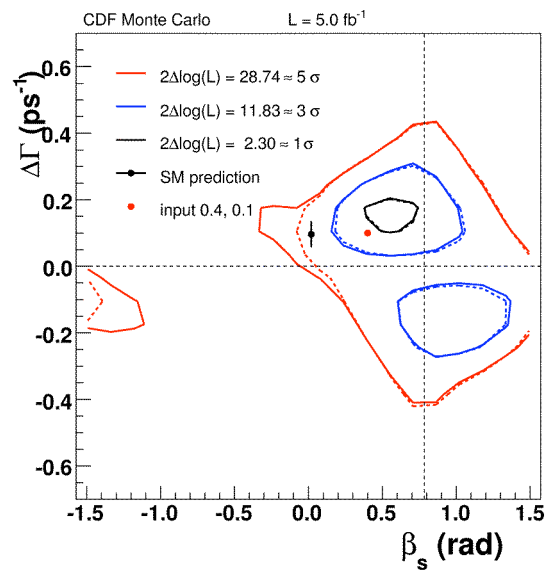


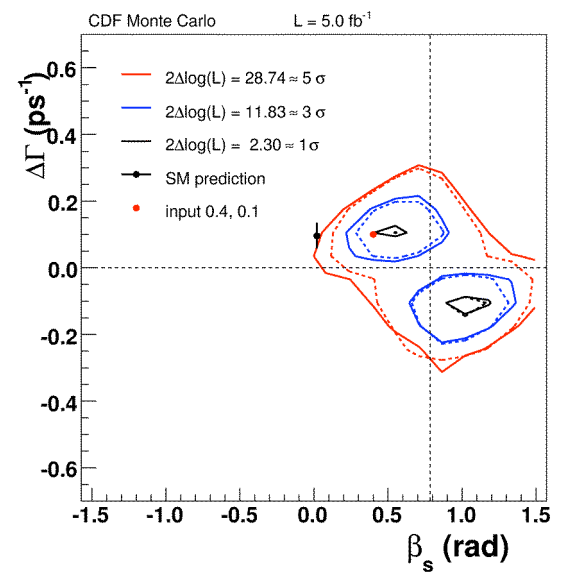
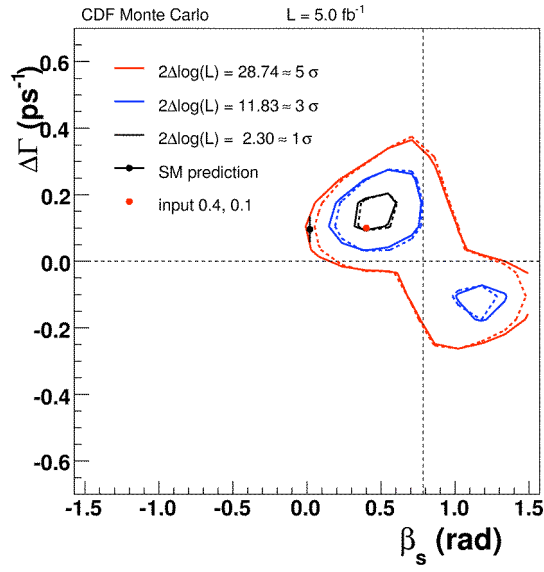
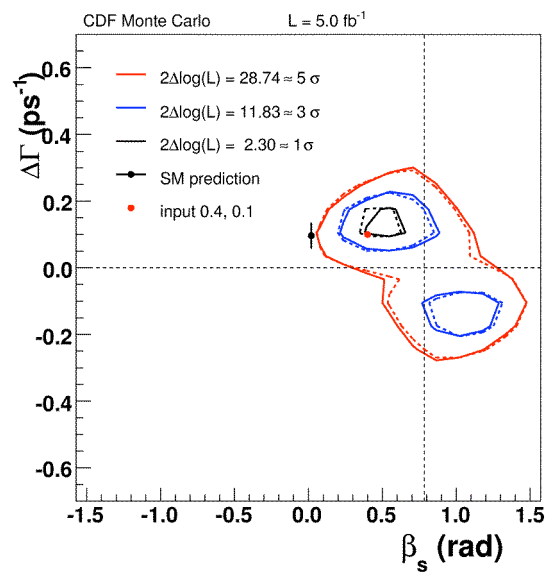
- 1.3 fb<sup>-1</sup>
- comparison between default ed2 and ed2 improved by 50% (dilution higher by 1.23) on 3 independent toy samples
- contours are not symmetrized
- continuous line = default
- dotted line = improved



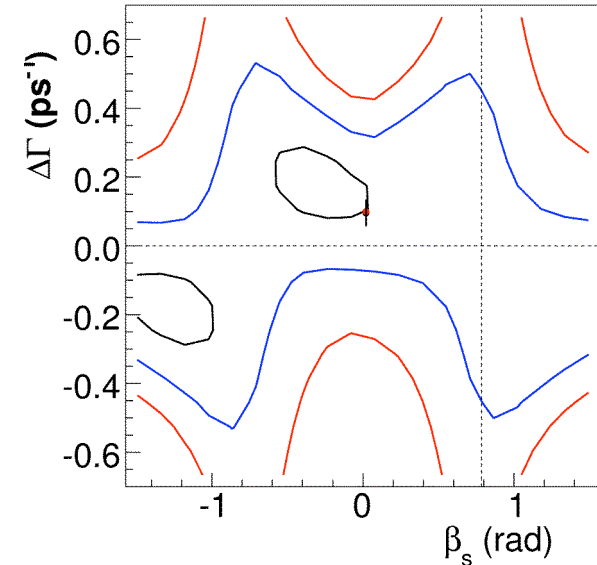
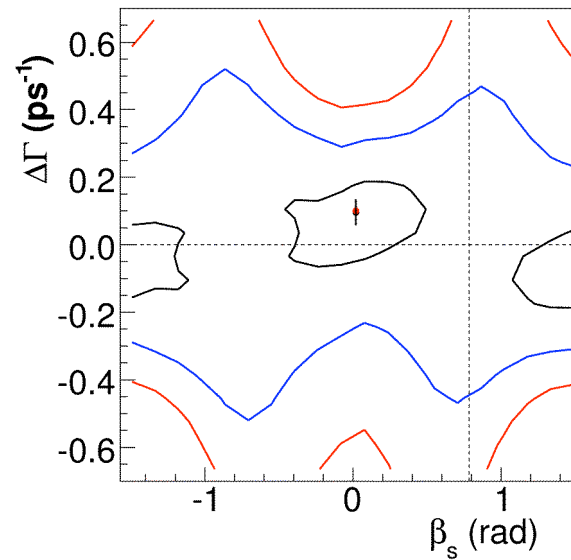
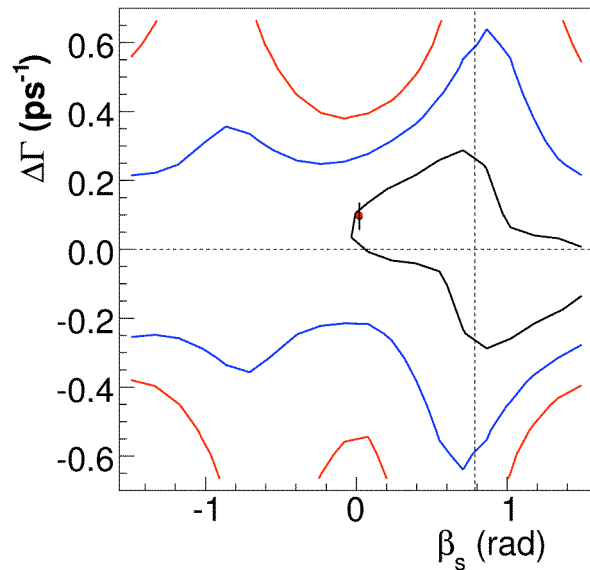
- 5.0 fb<sup>-1</sup>
- comparison between default ed2 and ed2 improved by 50%
- continuous line = default
- dotted line = improved



- 10.0 fb<sup>-1</sup>
- comparison between default ed2 and ed2 improved by 50%
- continuous line = default
- dotted line = improved

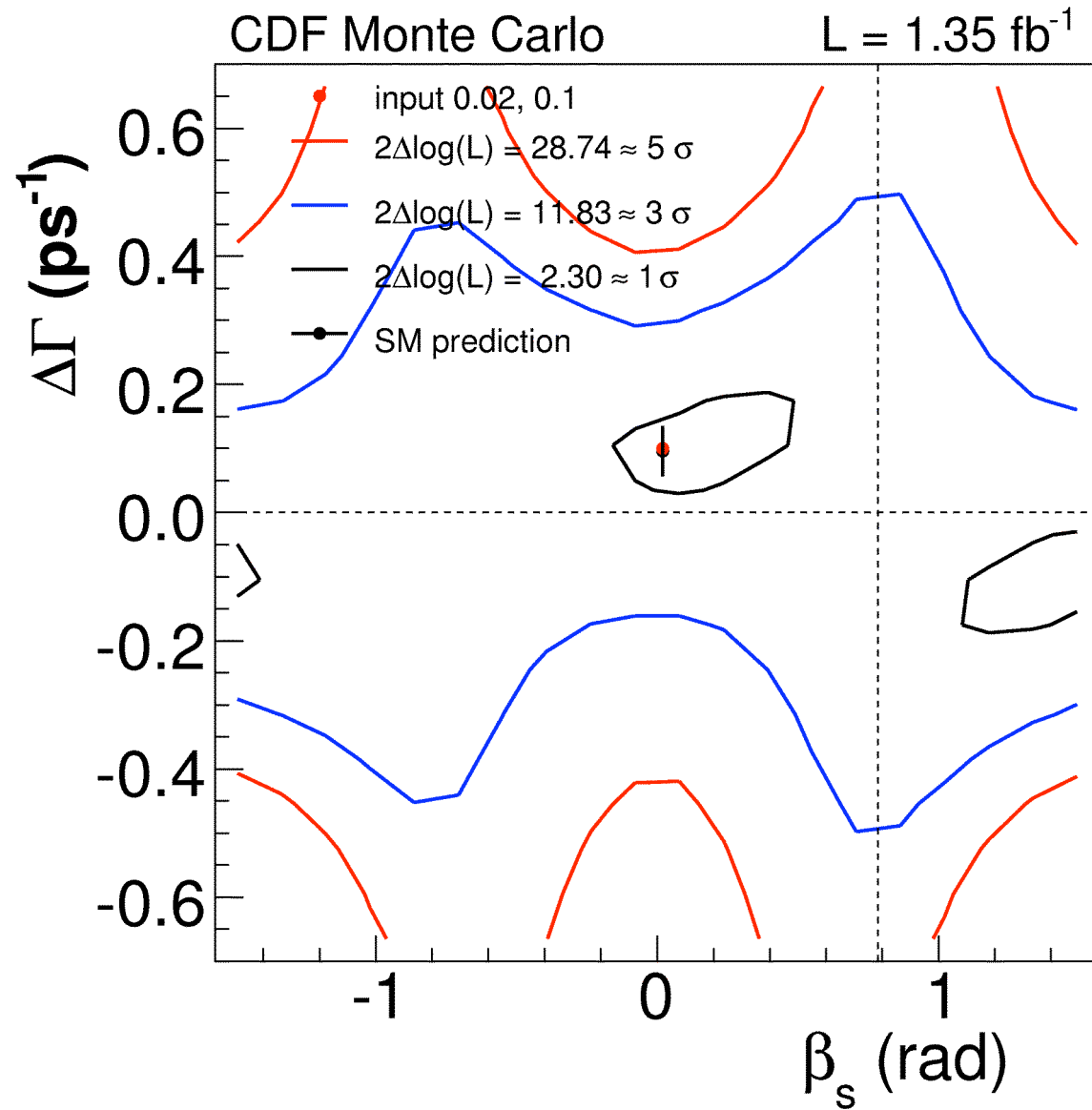


- 1.35 fb<sup>-1</sup>
- generate beta\_s and delta\_gamma at SM values: 0.02, 0.1
- 3 independent toys:

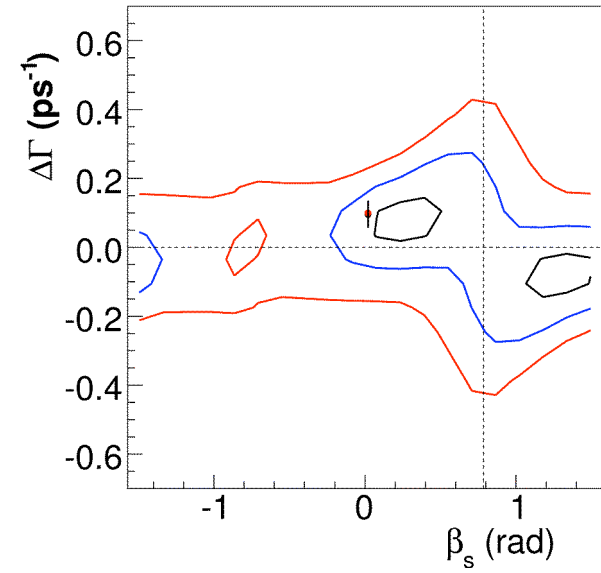
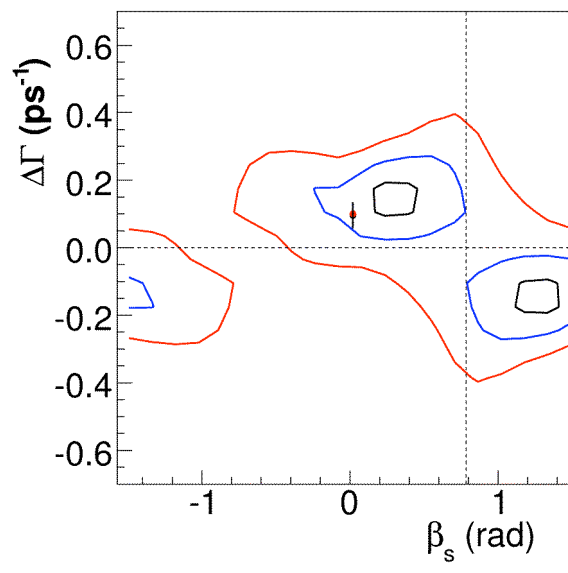
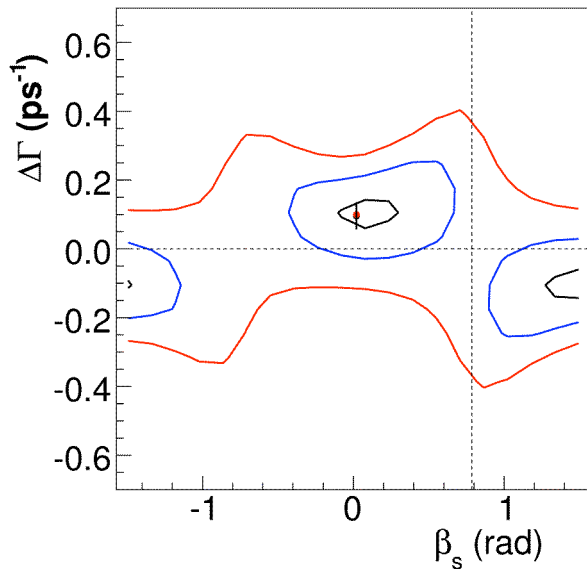


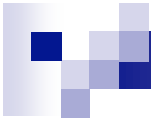


- Average over independent toys

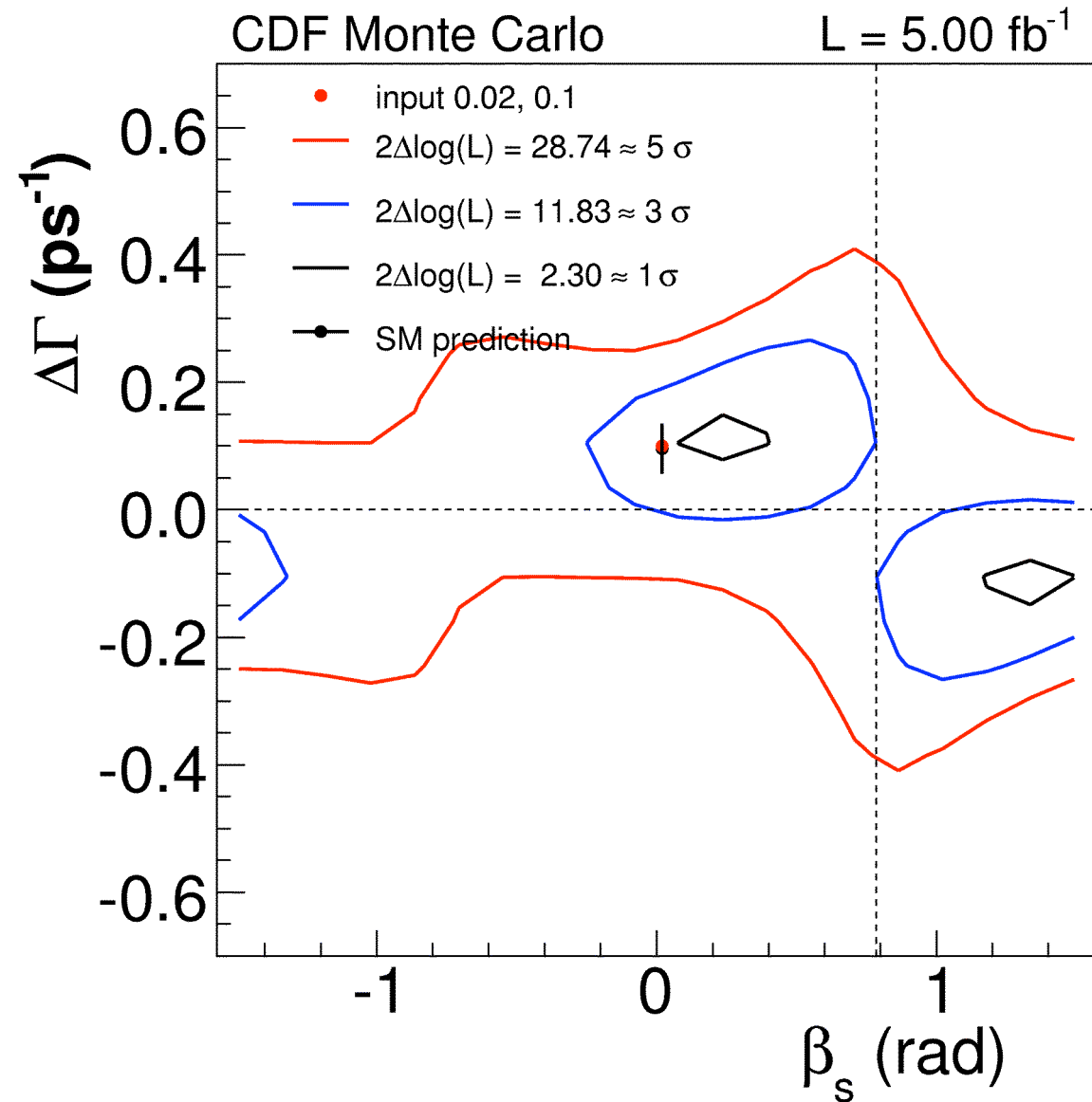


- 5.0 fb<sup>-1</sup>
- generate beta\_s and delta\_gamma at SM values: 0.02, 0.1
- 3 independent toys:

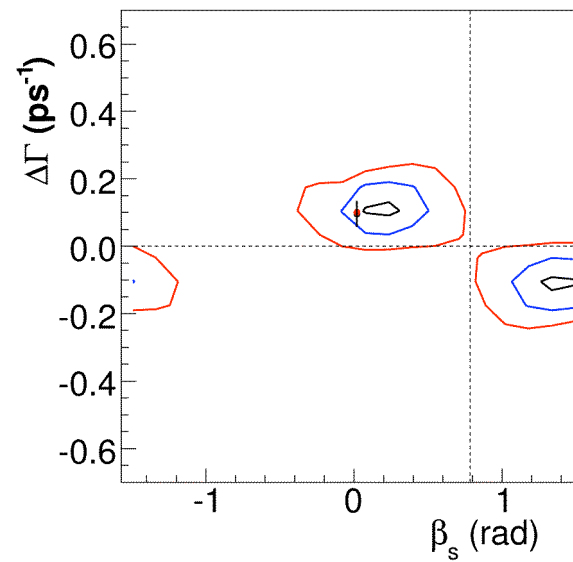
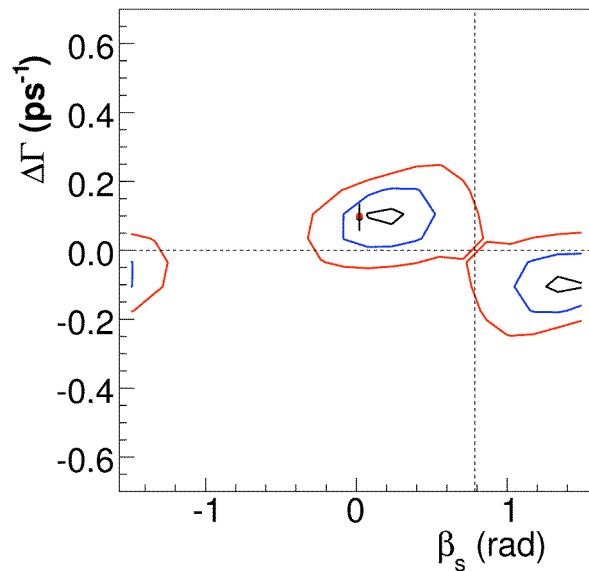




- Average over independent toys

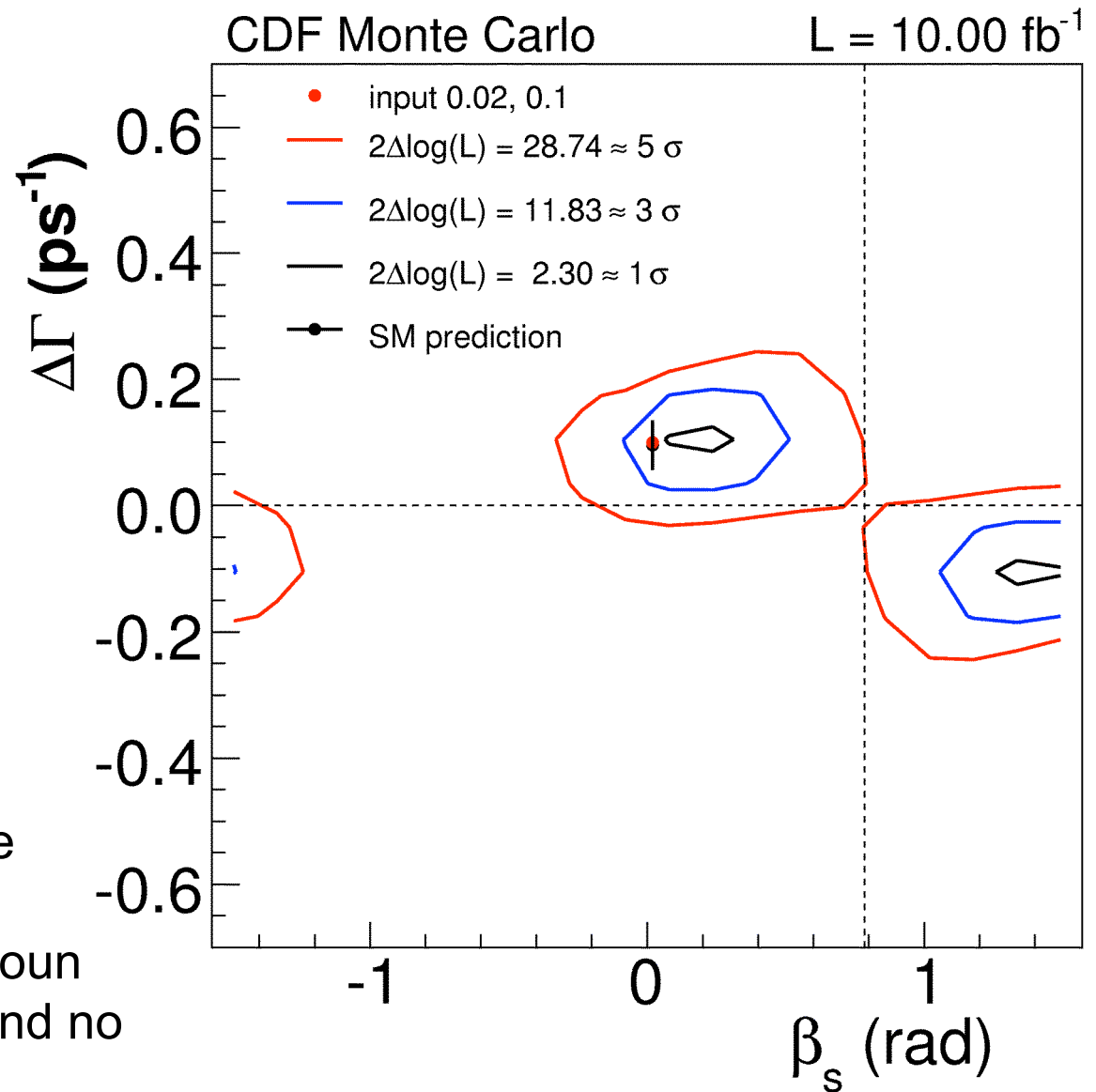


- 10.0 fb<sup>-1</sup>
- generate beta\_s and delta\_gamma at SM values: 0.02, 0.1
- 2 independent toys:

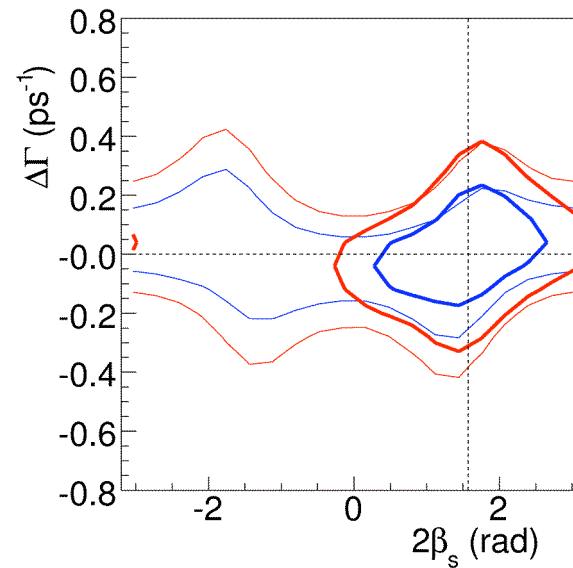
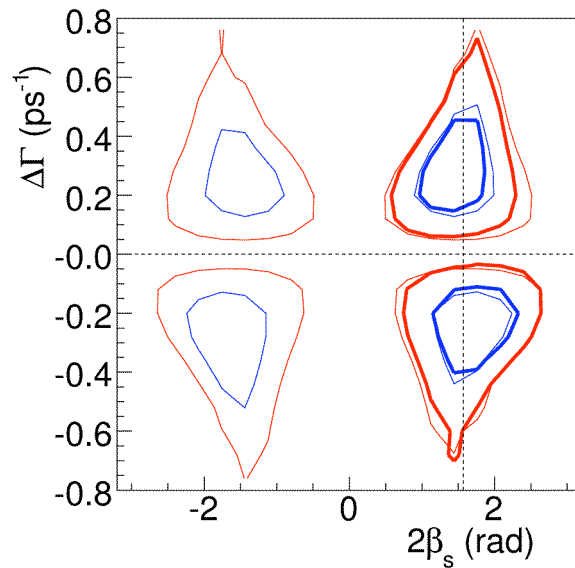


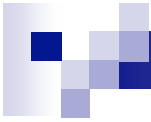


- Average over independent toys
- Used different random seeds between different toys at same luminosity, but used same set of random seeds in 1.3, 5.0 and 10 fb<sup>-1</sup>
- Either seeds are unlucky or we have a bias in the fit towards large beta<sub>s</sub> value
- However, Chunlei, Khaldoun and Karen ran toys pulls and no bias was seen...



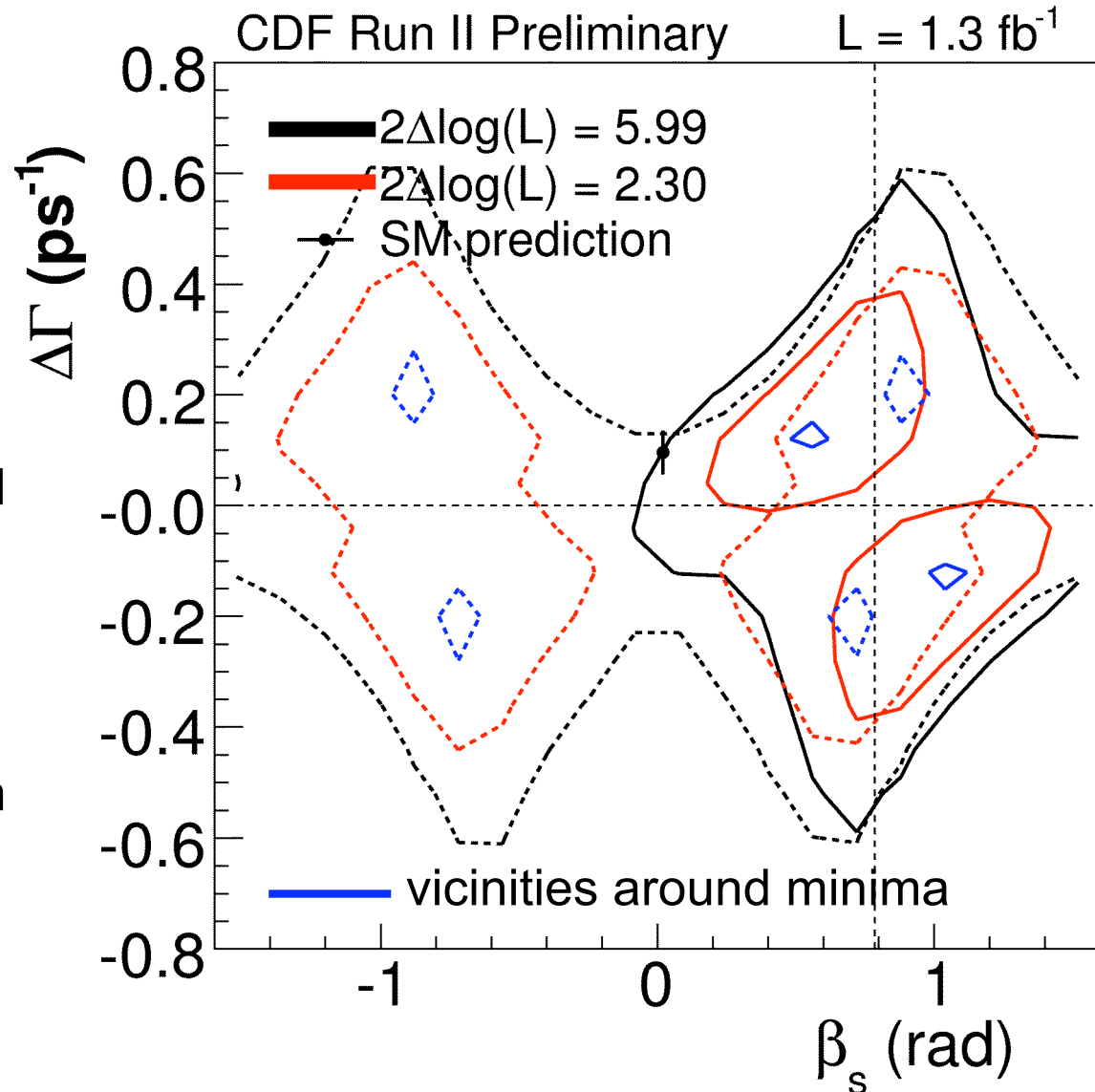
- Tagged (thick line) vs untagged (thin line) analysis
- If untagged analysis is biased and tagged analysis is not biased, why don't we see that difference in toys ?



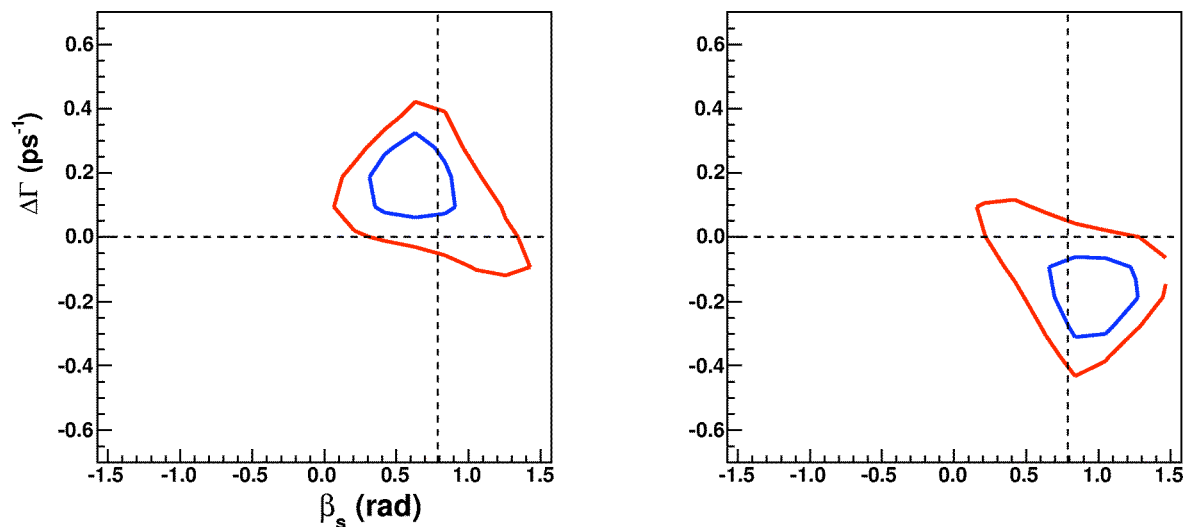


- Comparison between tagged (continuous) and untagged (dotted) analysis in data

- Here we see that the untagged analysis seem to prefer higher  $\beta_s$  value



- New boxing seem to finally work in MC
- Indeed, able to separate the two absolute minima and suppress the approximate minima:



- Running a few for toys to compare old and new boxing to make sure they give the same results after merging the two minima...