Images

February 12, 2026

The mass of the Z boson was found to be 91.141 ± 0.009 ± 0.003 GeV where the first error is statistical and the second systematic
The width of the Z boson was found to be 2.005 ± 0.025 ± 0.001 GeV where the first error is statistical and the second systematic
The correlation coefficient was 0.065

	Mass	Width
Calibration error	-0.00293	0.00004
Smearing error	-0.00001	0.00134
Υ(1S) mass error	0.0001	0.0000

Table 1: Z Systematic error on mass and width

	Mass	Width
Values	91.14133	2.00451
Statistical error	0.00875	0.02511

Table 2: Z Mass and width results with statistical error

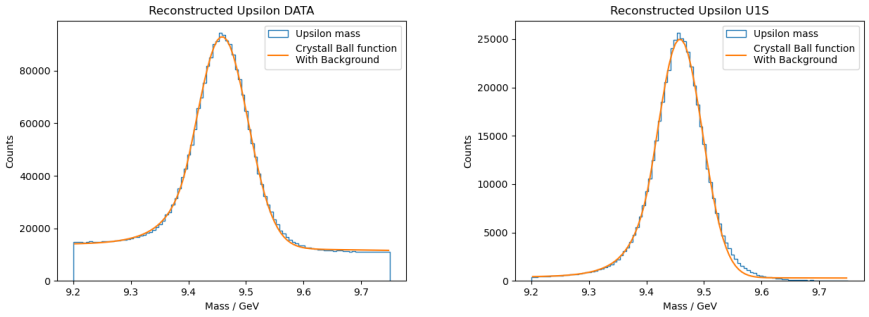

Figure 1:

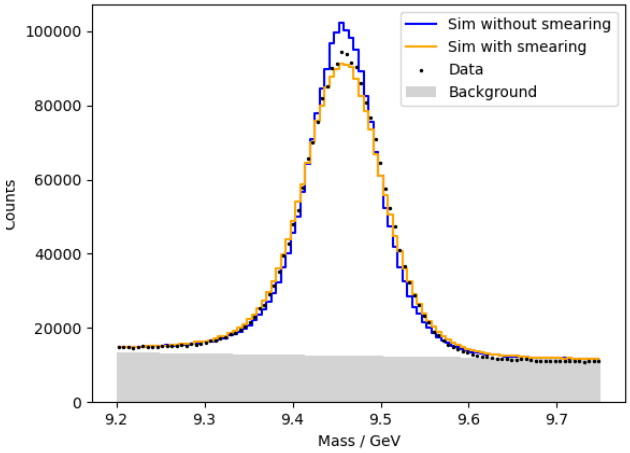

Figure 2:

χ^2	ndf
406.14	48

Table 3: minimum χ^2 and number of degrees of freedom

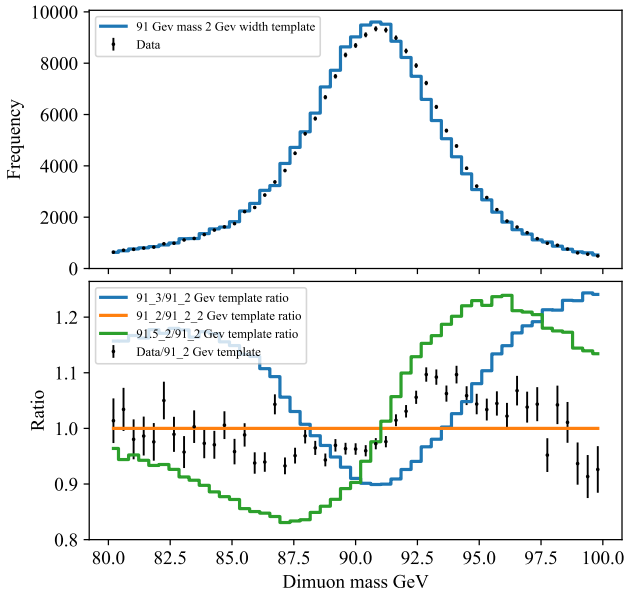

Figure 3:

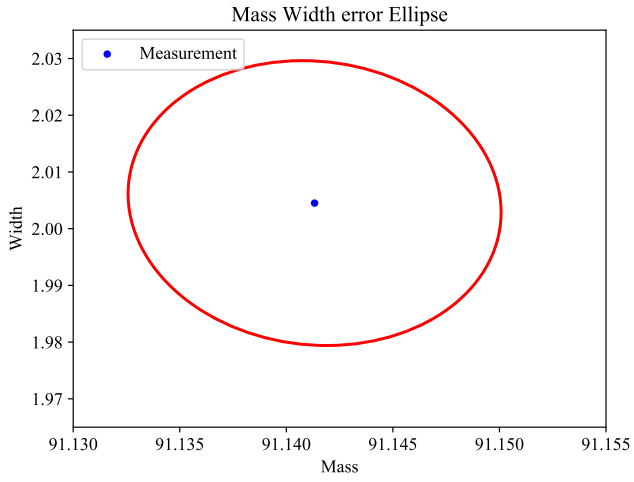

Figure 4:

When seperating the positve and negative dipole data:

Measuremnt	Positive dipole	Negative dipole
Mass [GeV]	91.101012 ± 0.01	91.165108 ± 0.01
Width [GeV]	1.937659 ± 0.03	2.060954 ± 0.03
χ^2	164.53	319.35
ndf	48	48

Table 4: Reults for positive and negative dipoles

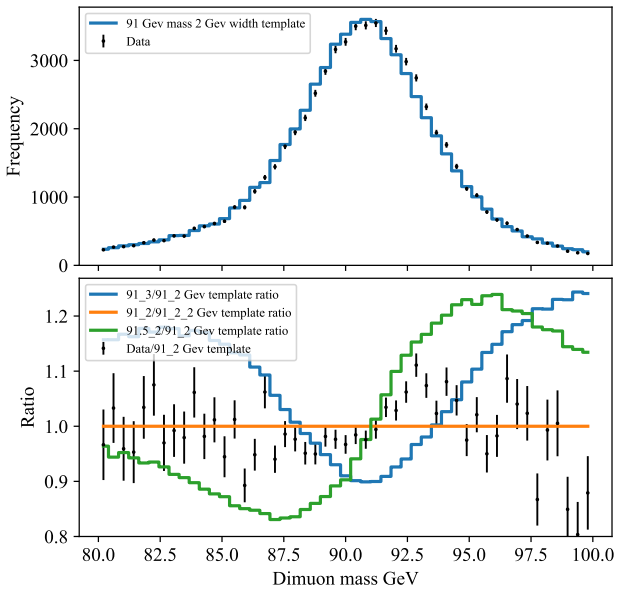

Figure 5: Positive dipole

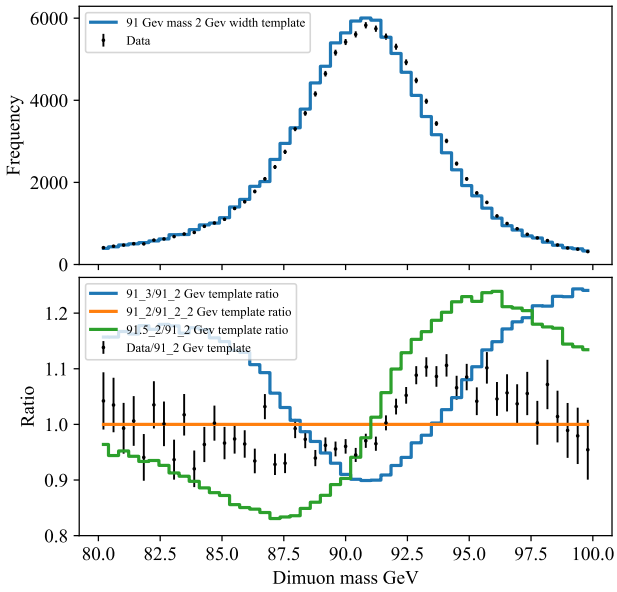

Figure 6: negative dipole

Magnetic Polarity	Mass Significance (σ)	Width Significance (σ)
$\pm$ 1	3.54713	2.64447

Table 5: Significance of mass and width differences between magnetic polarities