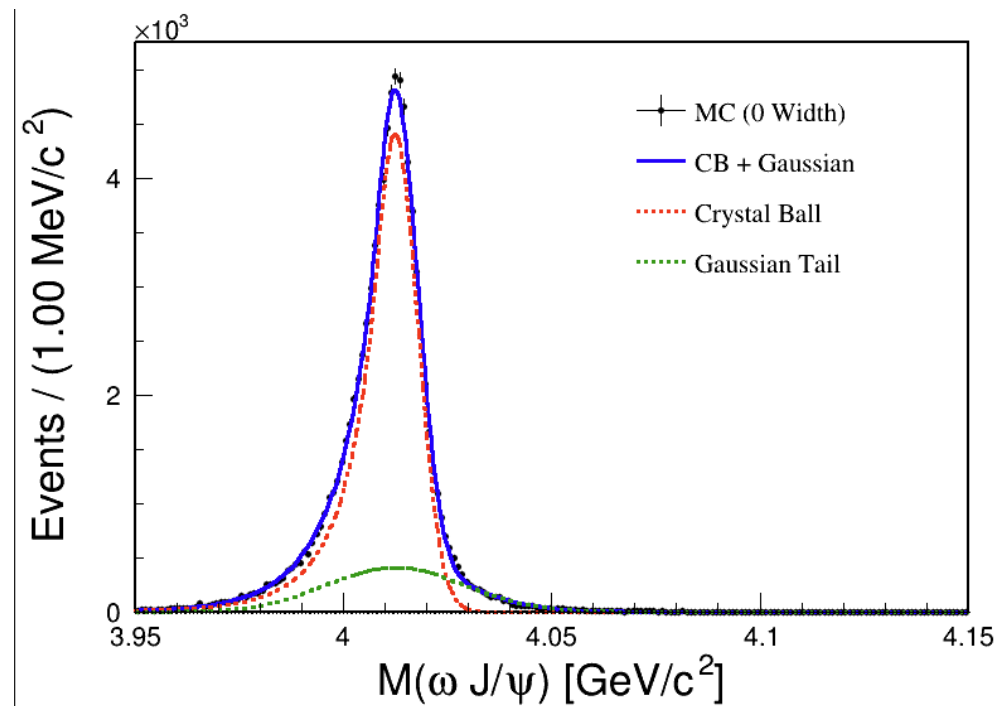
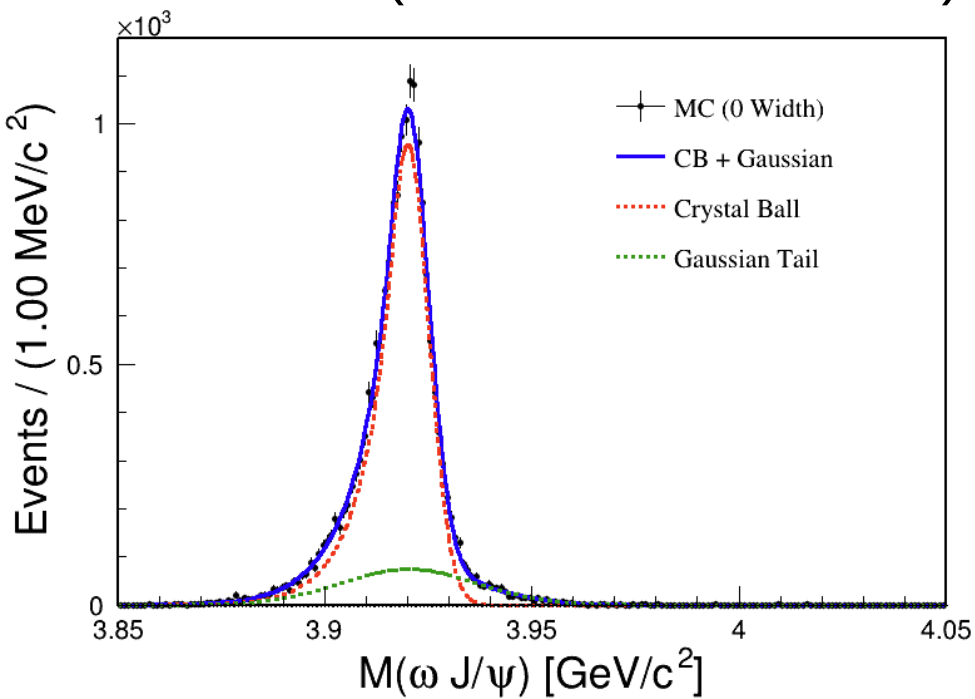


# Group meeting

2026/04/17

# MassFit (探测器分辨)



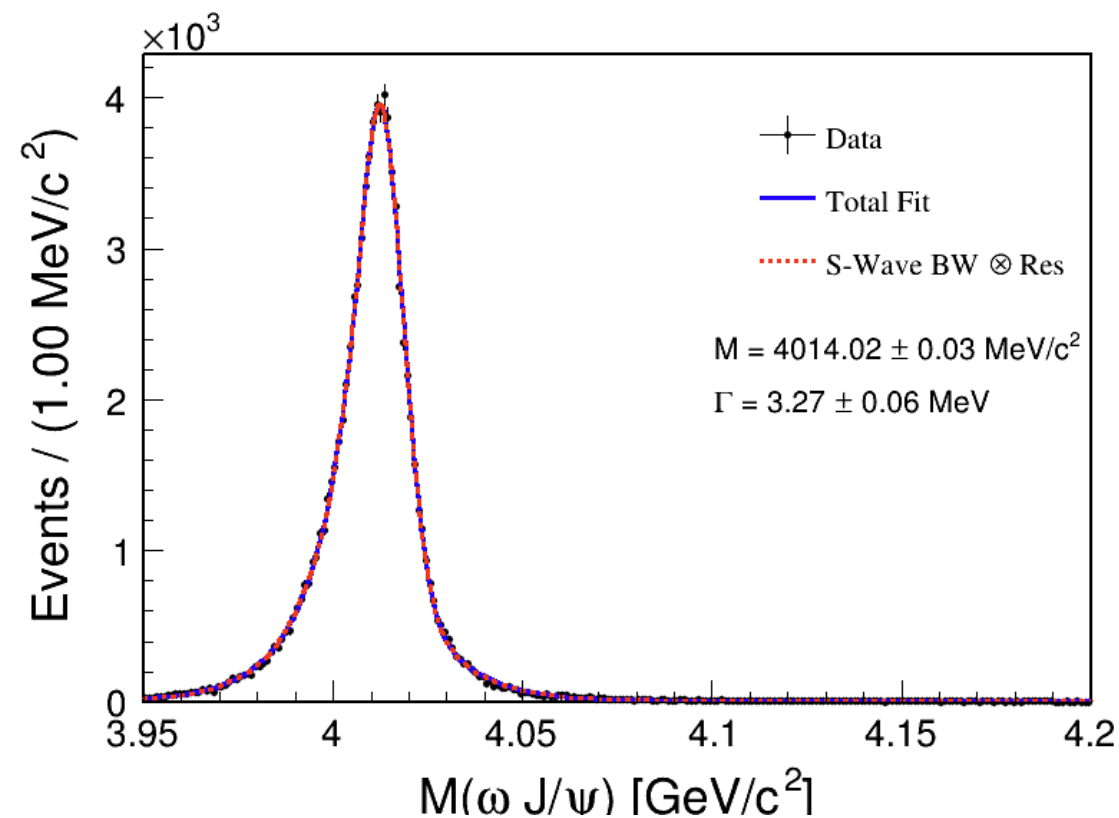
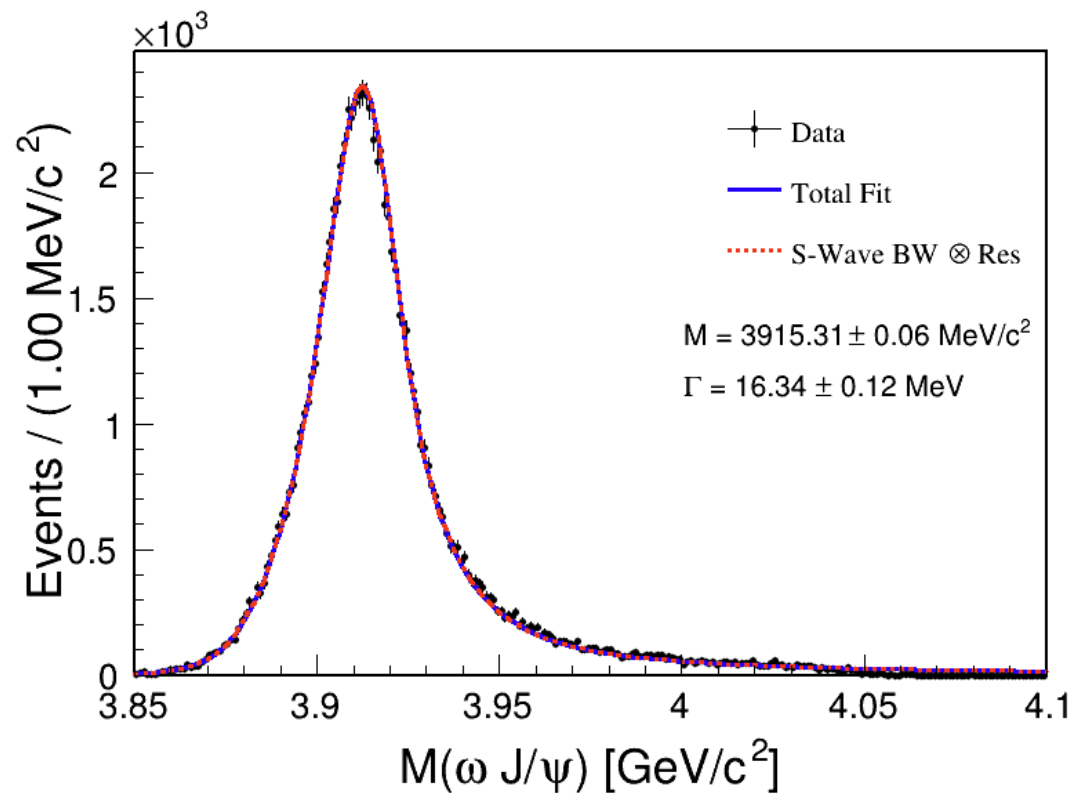
```
COVARIANCE MATRIX CALCULATED SUCCESSFULLY
FCN=-215241 FROM HESSE      STATUS=OK          56 CALLS      1165 TOTAL
EDM=5.66841e-06  STRATEGY= 1  ERROR MATRIX ACCURATE

EXT PARAMETER          INTERNAL      INTERNAL
NO.  NAME      VALUE      ERROR      STEP SIZE  VALUE
1  cb_alpha  6.90316e-01  1.65233e-02  6.92139e-05  -8.61860e-01
2  cb_n     8.93790e+01  8.71675e+01  5.00000e-01  9.06525e-01
3  cb_sigma 5.06804e-03  8.18533e-05  1.19544e-04  -3.83178e-02
4  frac     8.26249e-01  9.14293e-03  3.21964e-04  3.09934e-01
5  g_sigma  1.66890e-02  3.83614e-04  2.87431e-04  -5.87238e-01
6  mean     3.91996e+00  7.66199e-05  5.07380e-05  3.36736e-01
7  nsig     1.78790e+04  1.33710e+02  1.35535e-04  3.39835e-01
```

```
COVARIANCE MATRIX CALCULATED SUCCESSFULLY
FCN=-1.22343e+06 FROM HESSE  STATUS=OK          64 CALLS      459 TOTAL
EDM=0.000494697  STRATEGY= 1  ERROR MATRIX ACCURATE

EXT PARAMETER          INTERNAL      INTERNAL
NO.  NAME      VALUE      ERROR      STEP SIZE  VALUE
1  cb_alpha  7.72815e-01  1.13627e-02  1.98717e-03  -8.11589e-01
2  cb_n     8.37682e+00  5.53557e-01  6.96324e-03  -9.86858e-01
3  cb_sigma 5.52971e-03  4.37677e-05  3.62779e-03  5.89198e-02
4  frac     8.28906e-01  4.55435e-03  8.72760e-03  3.21116e-01
5  g_sigma  1.77829e-02  2.16262e-04  8.16862e-03  -5.01957e-01
6  mean     4.01229e+00  3.87019e-05  4.97528e-03  -5.72911e-01
7  nsig     9.02337e+04  3.00392e+02  3.58874e-03  3.37939e-01
```

# MassFit 单独拟合



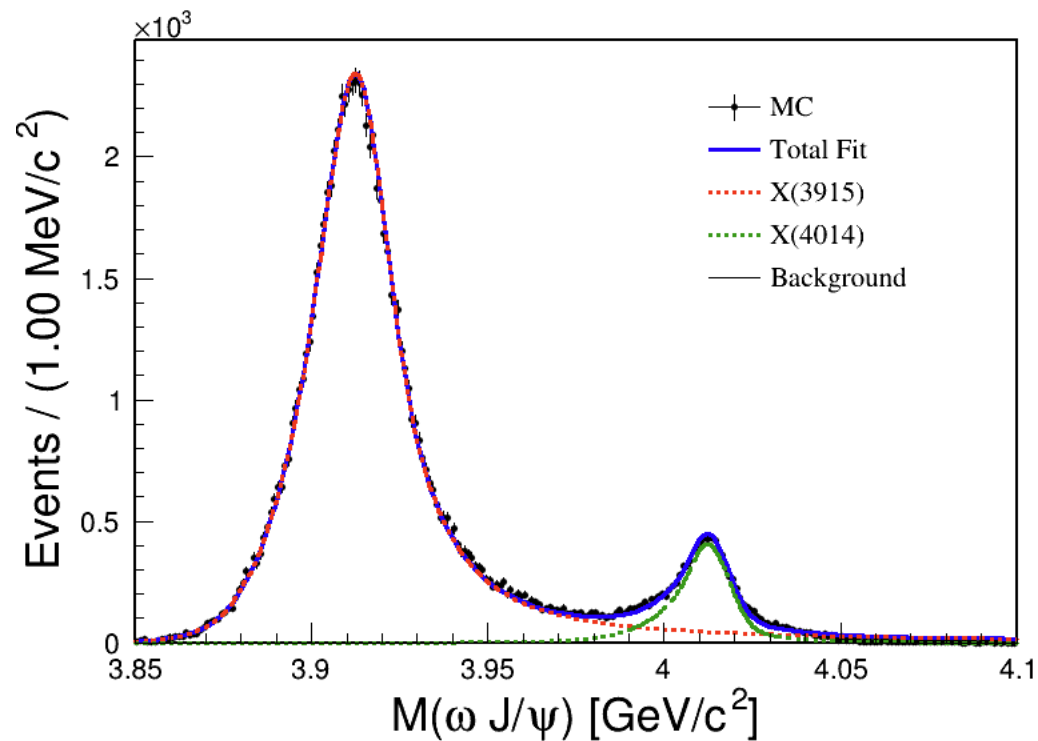
```

COVARIANCE MATRIX CALCULATED SUCCESSFULLY
FCN=-1.09272e+06 FROM HESSE      STATUS=OK      16 CALLS      85 TOTAL
EDM=5.16121e-06      STRATEGY= 2      ERROR MATRIX ACCURATE
EXT PARAMETER          INTERNAL      INTERNAL
NO.  NAME      VALUE      ERROR      STEP SIZE  VALUE
  1  Gamma1    1.63257e-02  1.21438e-04  3.76301e-04 -3.76244e-01
  2  M1        3.91488e+00  6.04410e-05  3.48457e-04 -2.30205e-02
  3  nsignal   8.55367e+04  2.92465e+02  9.86802e-05 -1.44341e-04
    
```

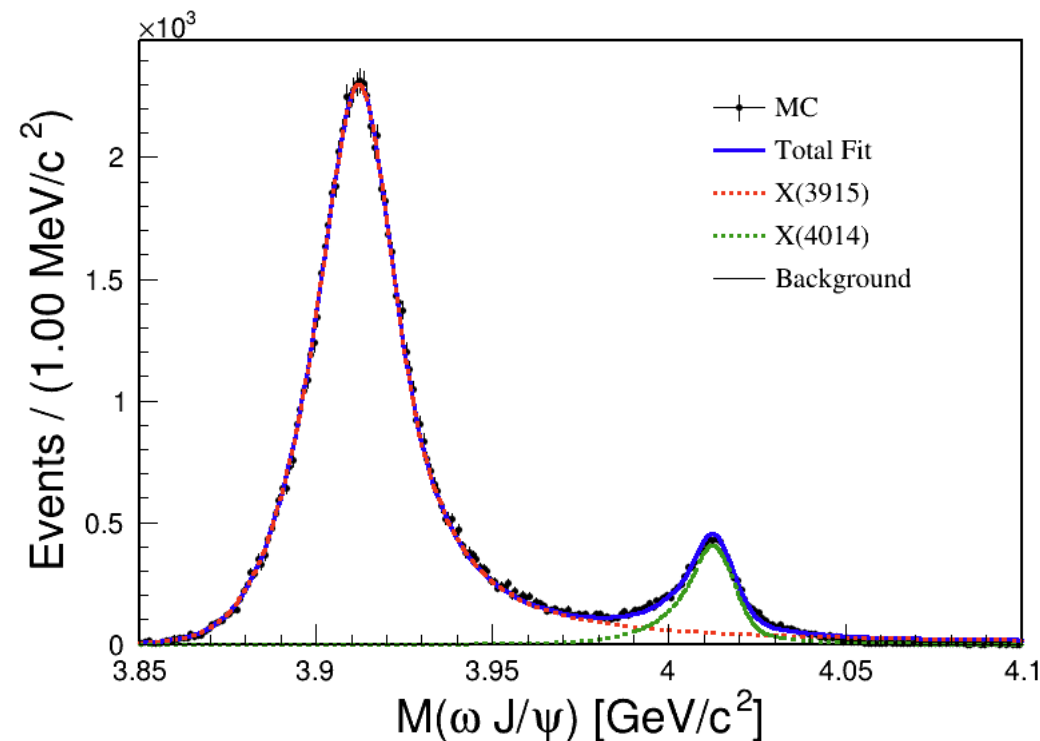
```

*****
COVARIANCE MATRIX CALCULATED SUCCESSFULLY
FCN=-1.19757e+06 FROM HESSE      STATUS=OK      16 CALLS      86 TOTAL
EDM=1.63952e-06      STRATEGY= 2      ERROR MATRIX ACCURATE
EXT PARAMETER          INTERNAL      INTERNAL
NO.  NAME      VALUE      ERROR      STEP SIZE  VALUE
  1  Gamma1    3.26641e-03  5.69868e-05  1.15564e-03 -7.38743e-01
  2  M1        4.01402e+00  3.44079e-05  4.20880e-05 -1.97495e-01
  3  nsignal   8.99263e+04  2.99877e+02  1.00368e-04 -4.16088e-03
    
```

# MassFit 非相干假设下同时拟合(R=0.1)



Fix M1 gamma1



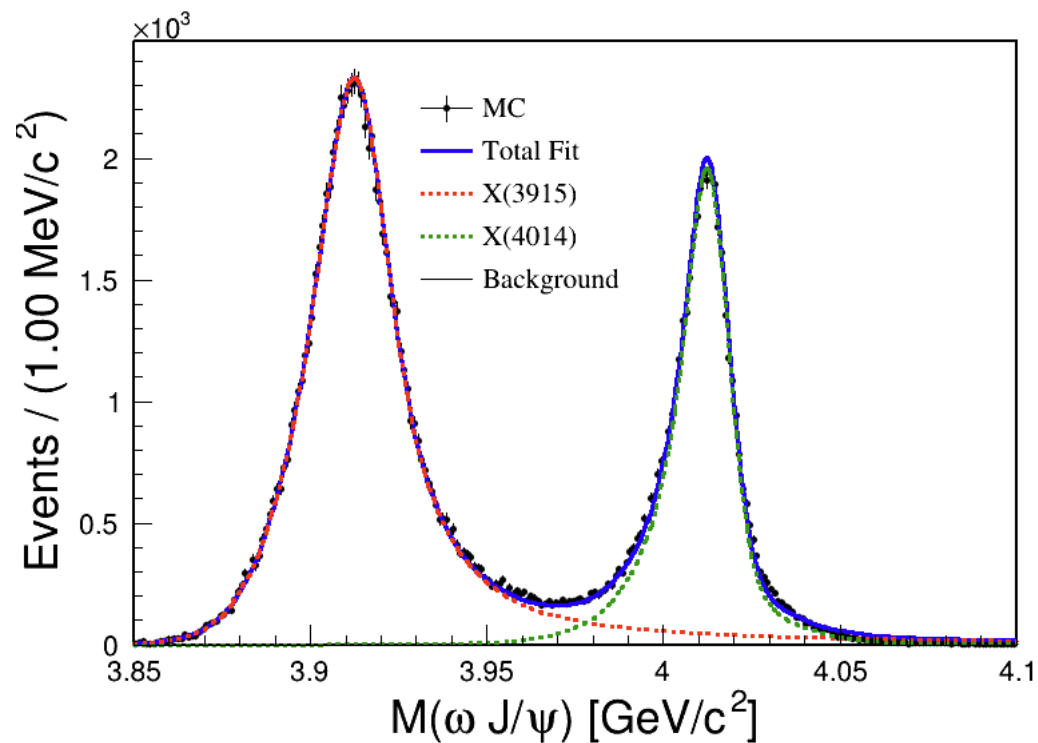
```
COVARIANCE MATRIX CALCULATED SUCCESSFULLY
FCN=-1.19404e+06 FROM HESSE STATUS=OK 40 CALLS 194 TOTAL
EDM=0.000134702 STRATEGY= 2 ERROR MATRIX ACCURATE
```

EXT NO.	PARAMETER NAME	VALUE	ERROR	INTERNAL STEP SIZE	INTERNAL VALUE
1	Gamma1	1.63114e-02	1.37051e-04	2.67080e-04	-7.53824e-01
2	Gamma2	1.93852e-03	2.70416e-04	1.25389e-03	-9.37614e-01
3	M1	3.91531e+00	6.04170e-05	6.06856e-04	2.04679e-02
4	M2	4.01403e+00	1.26407e-04	7.57999e-04	-1.95937e-01
5	nsig1	8.55085e+04	3.01181e+02	9.54054e-05	-9.13389e-02
6	nsig2	8.58248e+03	1.17407e+02	8.22949e-05	-1.14036e+00

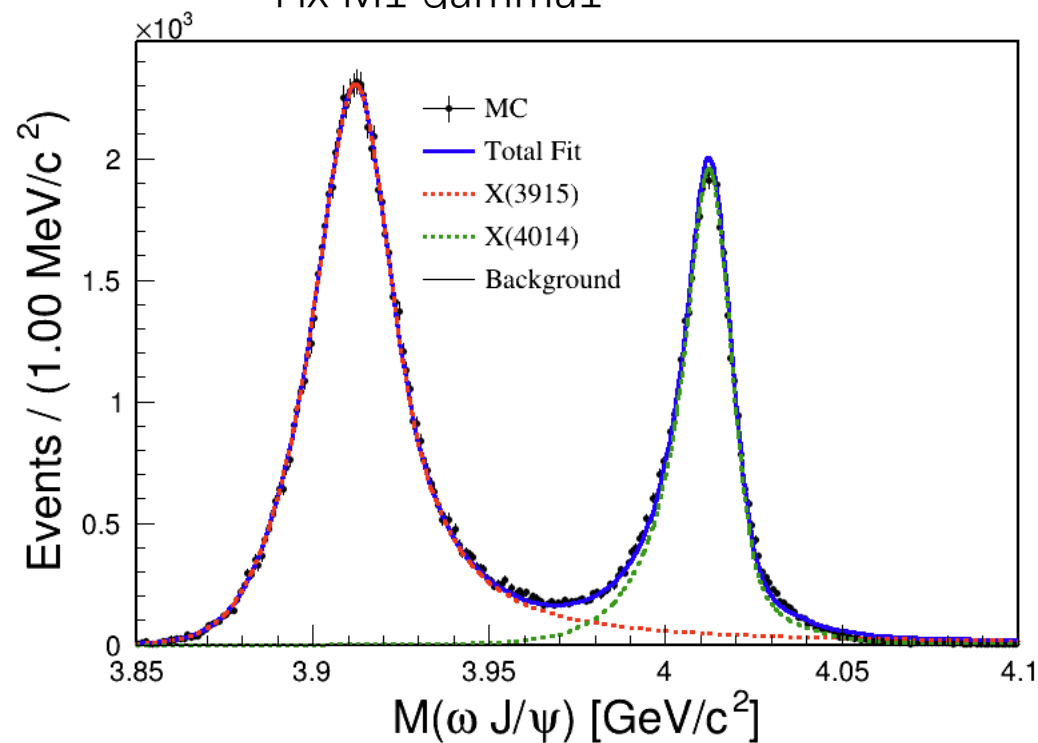
```
*****
COVARIANCE MATRIX CALCULATED SUCCESSFULLY
FCN=-1.19402e+06 FROM HESSE STATUS=OK 23 CALLS 130 TOTAL
EDM=5.89439e-06 STRATEGY= 2 ERROR MATRIX ACCURATE
```

EXT NO.	PARAMETER NAME	VALUE	ERROR	INTERNAL STEP SIZE	INTERNAL VALUE
1	Gamma2	1.64134e-03	2.59206e-04	5.33401e-05	-9.89708e-01
2	M2	4.01407e+00	1.25468e-04	7.55016e-04	-1.86661e-01
3	nsig1	8.56615e+04	2.99626e+02	9.54750e-05	-8.97065e-02
4	nsig2	8.42949e+03	1.12001e+02	8.25522e-05	-1.14428e+00

# MassFit 非相干假设下同时拟合(R=0.5)



Fix M1 gamma1



```
FCN=-1.64585e+06 FROM HESSE STATUS=OK 40 CALLS 194 TOTAL
EDM=2.02242e-05 STRATEGY= 2 ERROR MATRIX ACCURATE
```

EXT NO.	PARAMETER NAME	VALUE	ERROR	INTERNAL STEP SIZE	INTERNAL VALUE
1	Gamma1	1.65826e-02	1.45080e-04	3.28590e-04	-7.35379e-01
2	Gamma2	2.40944e-03	1.04954e-04	5.36468e-04	-8.61862e-01
3	M1	3.91530e+00	6.08179e-05	7.17513e-04	1.97250e-02
4	M2	4.01403e+00	5.13662e-05	3.63217e-04	-1.95894e-01
5	nsig1	8.57873e+04	3.06278e+02	8.78031e-05	-3.37768e-01
6	nsig2	4.25184e+04	2.24805e+02	8.04494e-05	-7.32345e-01

```
COVARIANCE MATRIX CALCULATED SUCCESSFULLY
FCN=-1.64583e+06 FROM HESSE STATUS=OK 23 CALLS 129 TOTAL
EDM=4.43625e-06 STRATEGY= 2 ERROR MATRIX ACCURATE
```

EXT NO.	PARAMETER NAME	VALUE	ERROR	INTERNAL STEP SIZE	INTERNAL VALUE
1	Gamma2	2.35173e-03	1.01563e-04	1.08170e-04	-8.70773e-01
2	M2	4.01404e+00	5.11311e-05	7.25658e-05	-1.94138e-01
3	nsig1	8.59014e+04	3.02867e+02	8.78526e-05	-3.36826e-01
4	nsig2	4.24044e+04	2.19618e+02	1.60967e-05	-7.33542e-01

# MassFit pull TEST (fix M1 gamma1)

1000个toyMC 每个MC 500个+泊松

