

Figure 44: Fit result of the BESIII measured Born cross section of $e^+e^- \rightarrow \Lambda_c^+ \bar{\Lambda}_c^-$ process, where the magenta vertical dashed line represents the $\Lambda_c^+ \bar{\Lambda}_c^-$ threshold and the solid blue line is the fit curve.

In addition to the cross sections, the helicity angle distributions of the Λ_c^+ baryon have been studied, from which the electric and magnetic form factor ratios $|G_E/G_M|$ are extracted, as illustrated in Fig. 45. Similarly, an oscillation model proposed in Ref. [30] is used to fit the c.m. energy dependence of $|G_E/G_M|$:

$$|G_E/G_M|(s) = \frac{1}{1 + \omega^2/a_0} [1 + a_1 e^{-a_2 \omega} \sin(a_3 \omega)], \quad (48)$$

where $\omega = \sqrt{s} - 2m_{\Lambda_c^+}$ is the c.m. energy dependent oscillation frequency. The blue curve in Fig. 45 shows the fit result, which indicates that there is somewhat oscillation related to $|G_E/G_M|$ in terms of the c.m. energy in the pair production of the Λ_c^+ baryon.

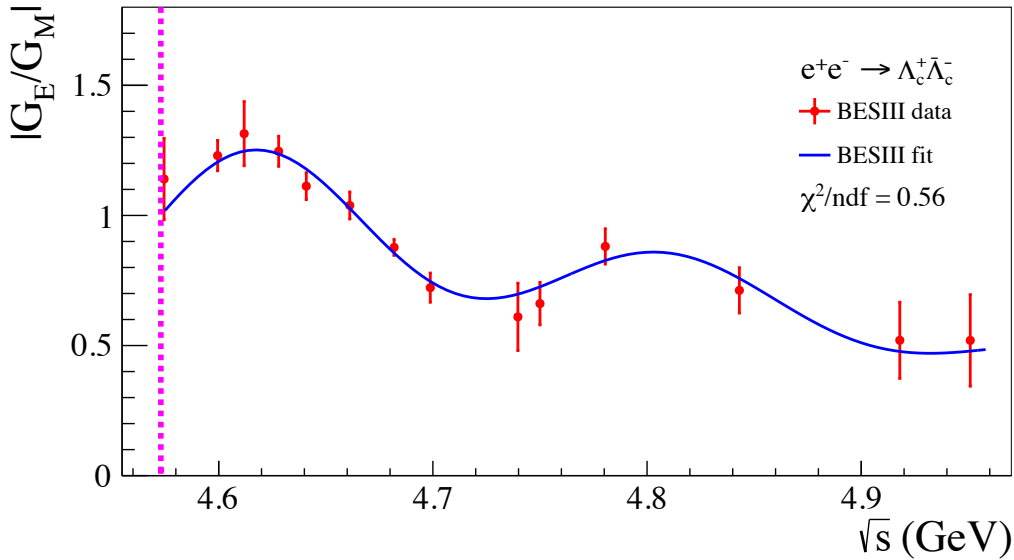


Figure 45: The $|G_E/G_M|$ ratios measured by this work.