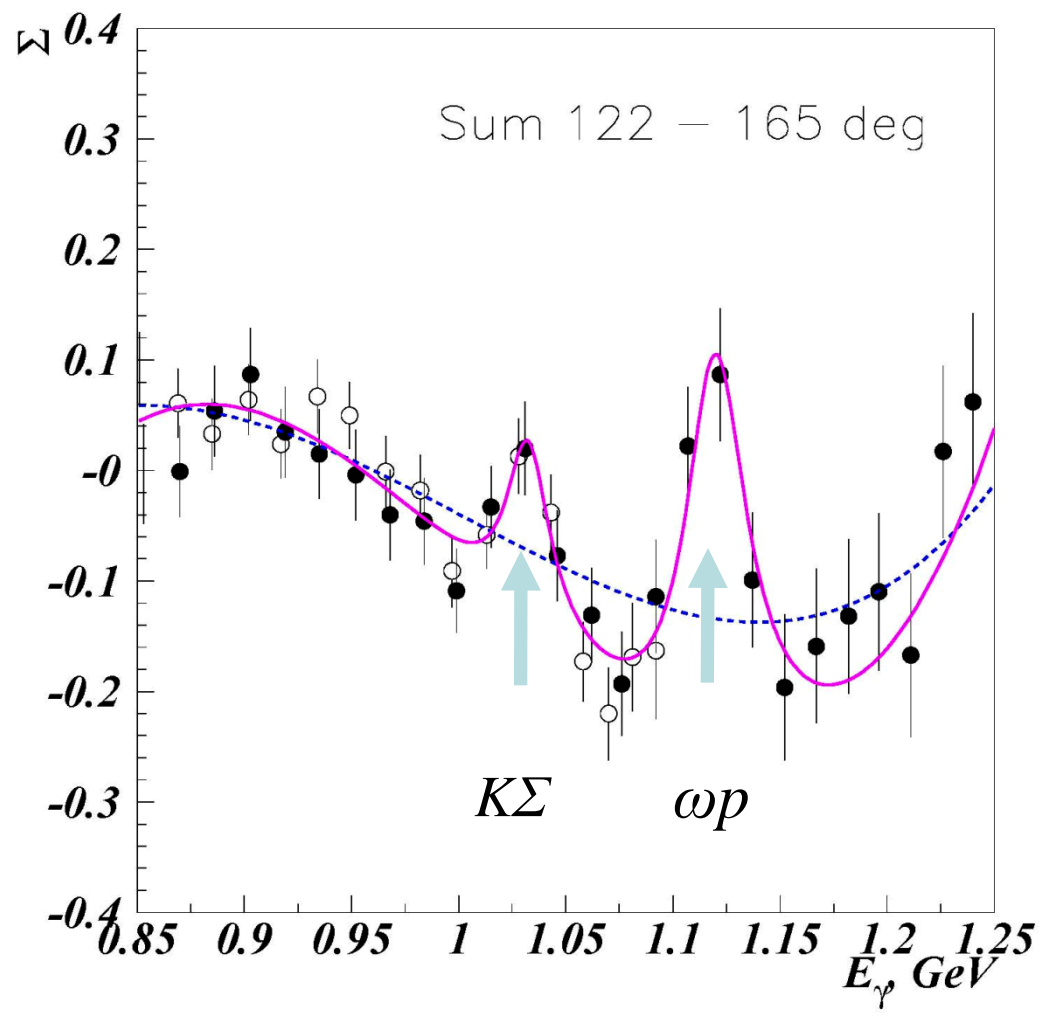
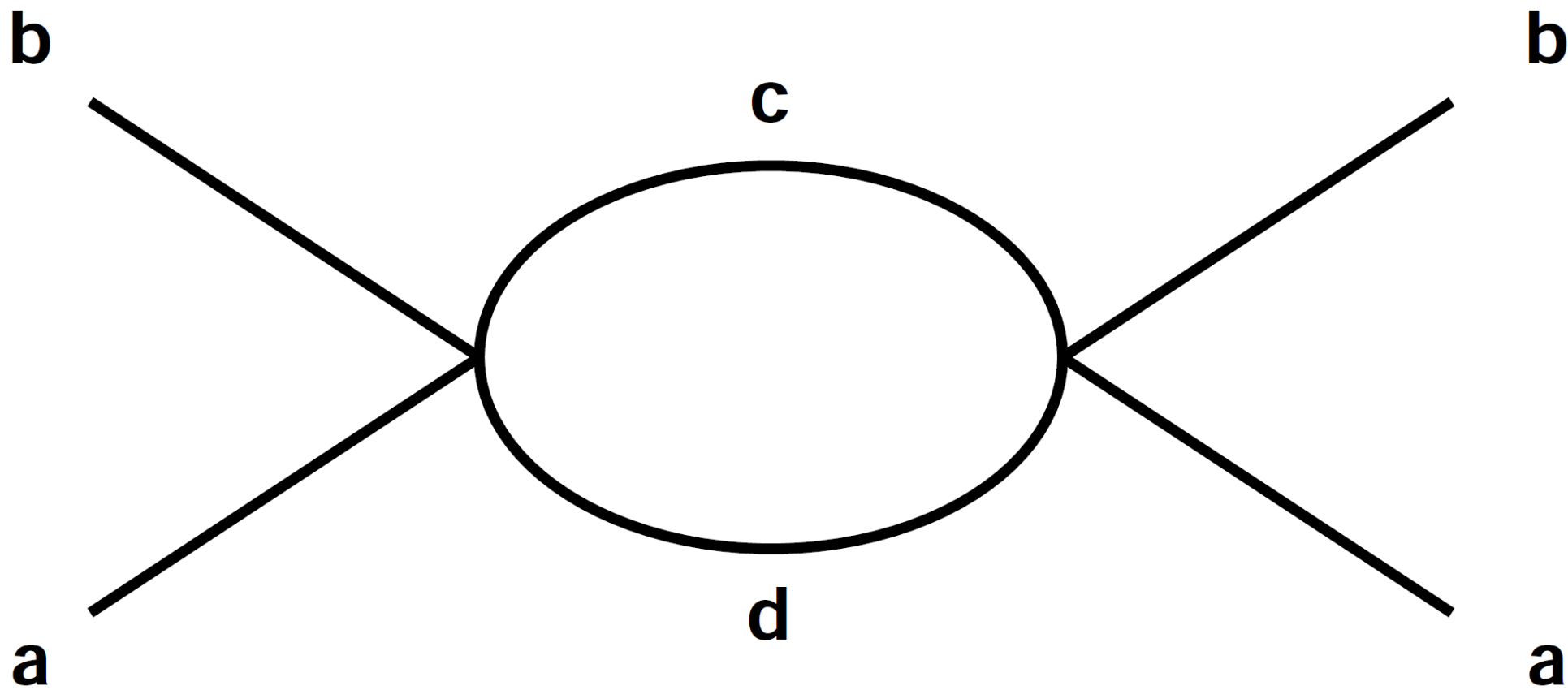
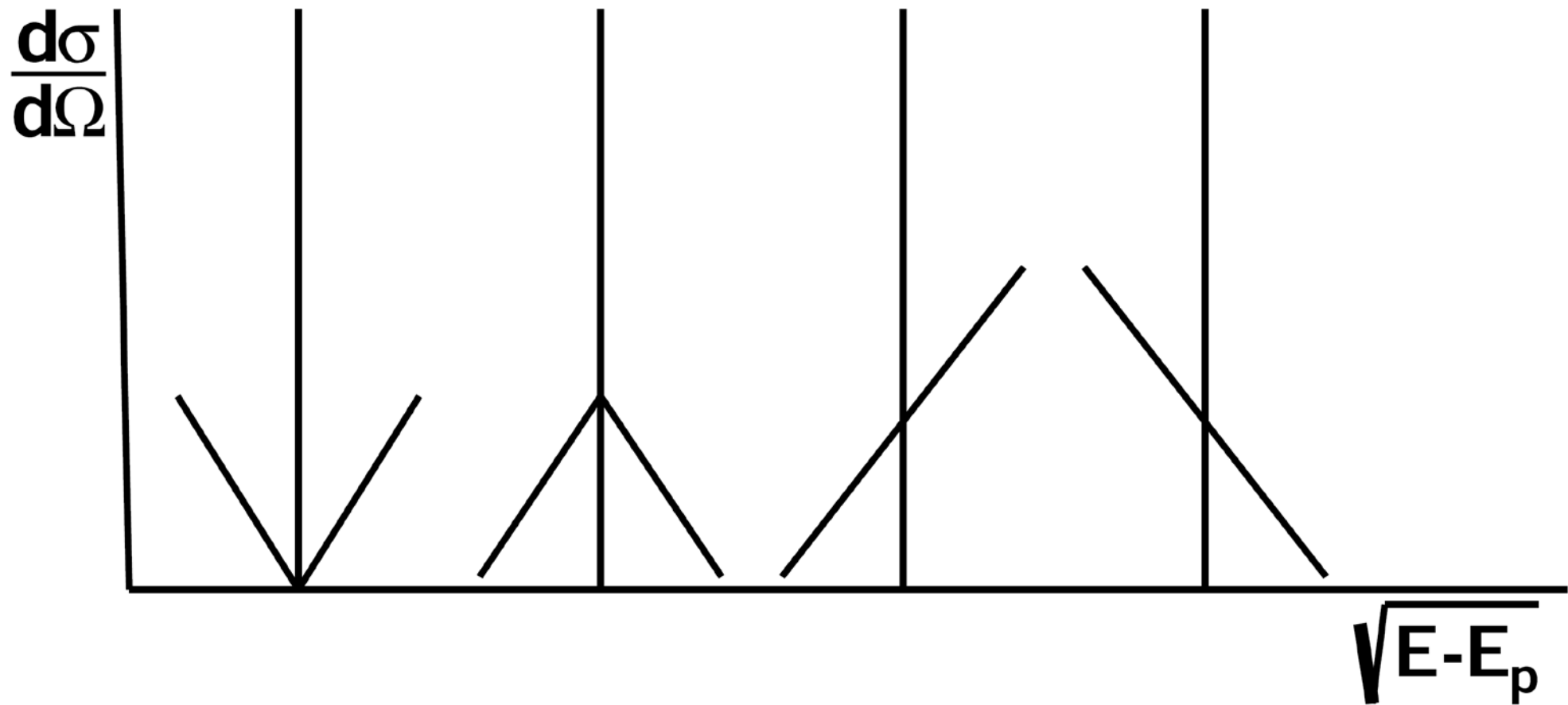


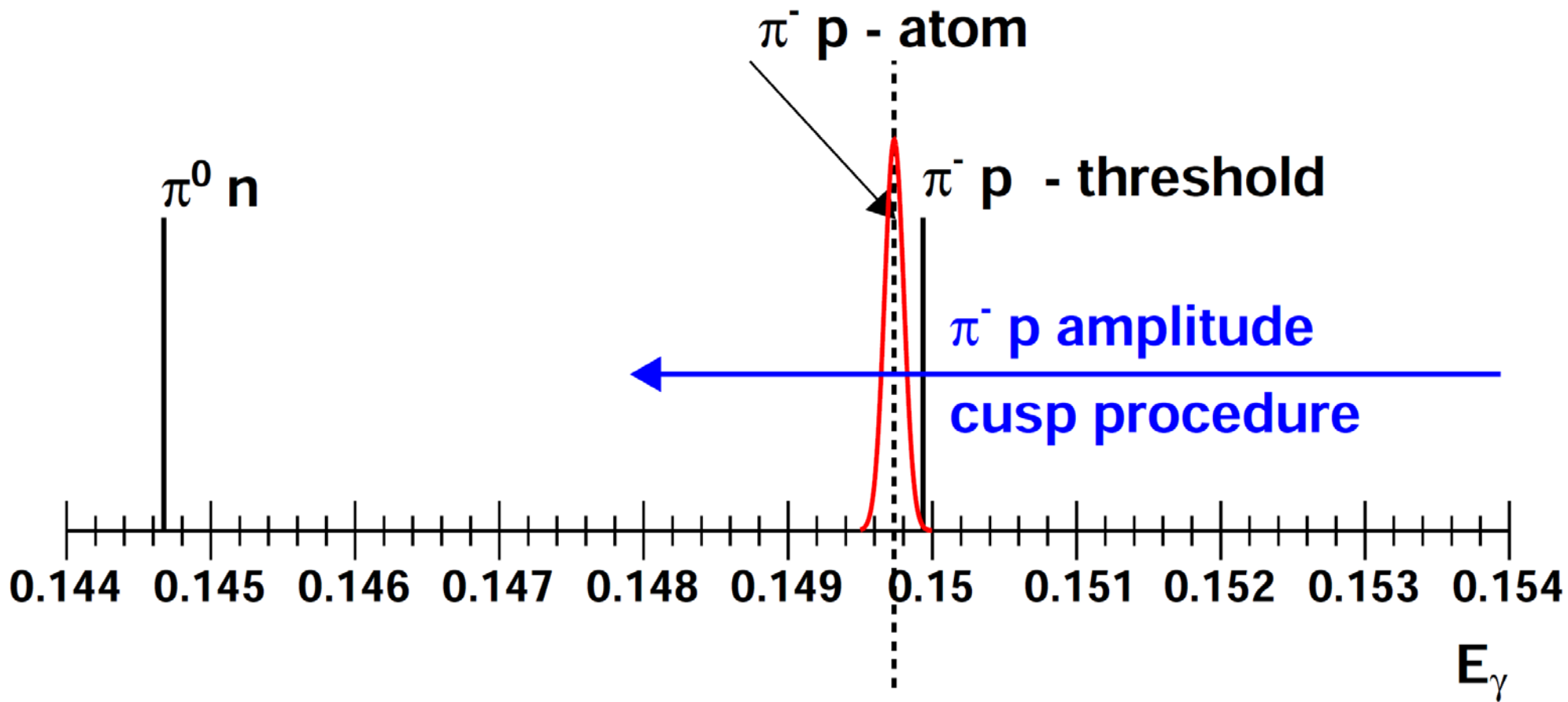
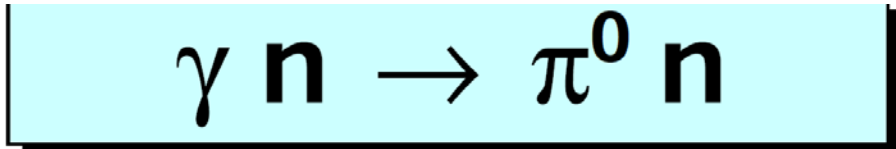
Пороговые аномалии в ядерных реакциях





$$G \propto \frac{1}{E - E_{\text{thr}} + i\delta}$$





$$M_{K^0} + M_{\Sigma^0} = 1690.3$$

$$M_{K^+} + M_{\Sigma^-} = 1691.2$$

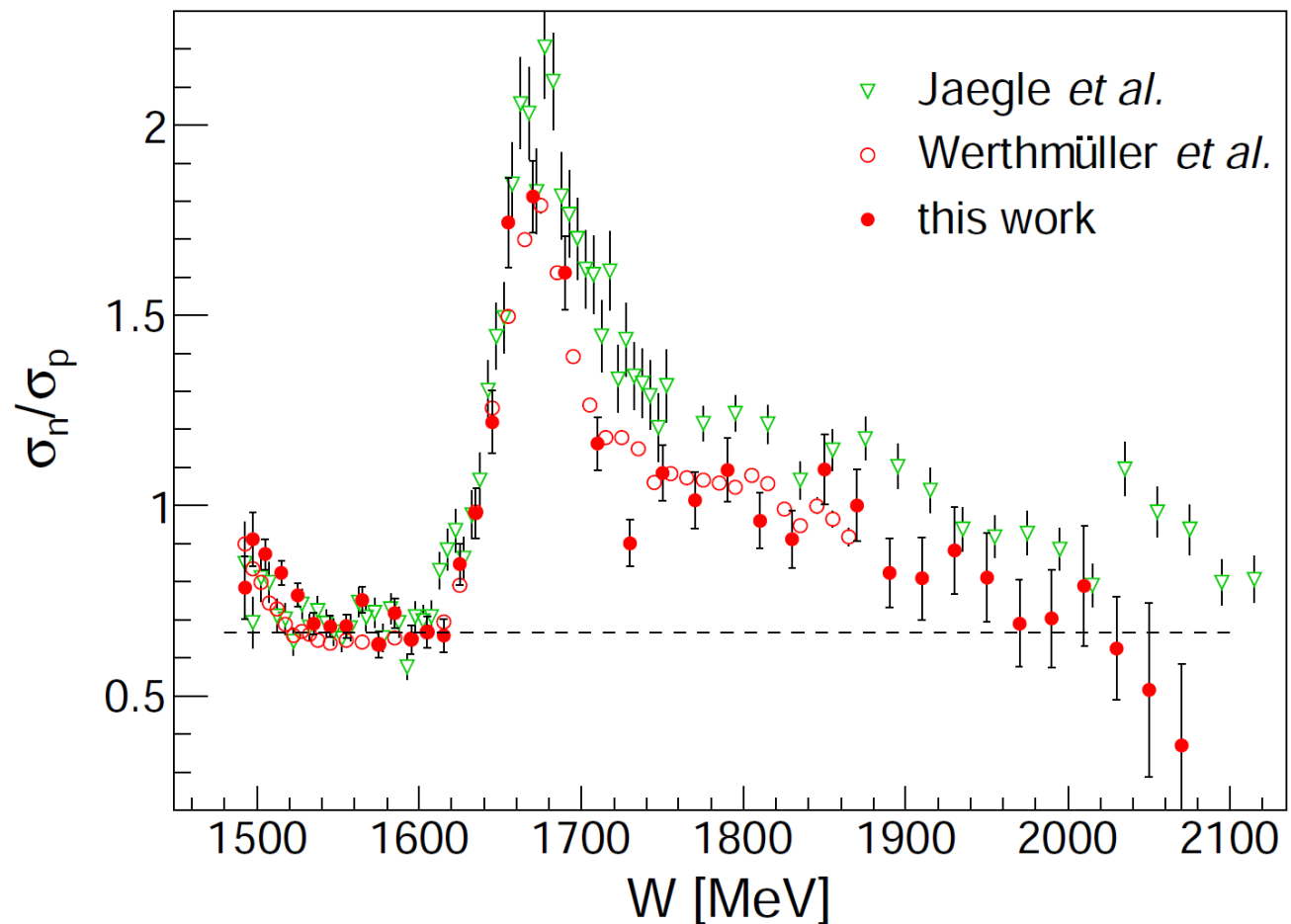
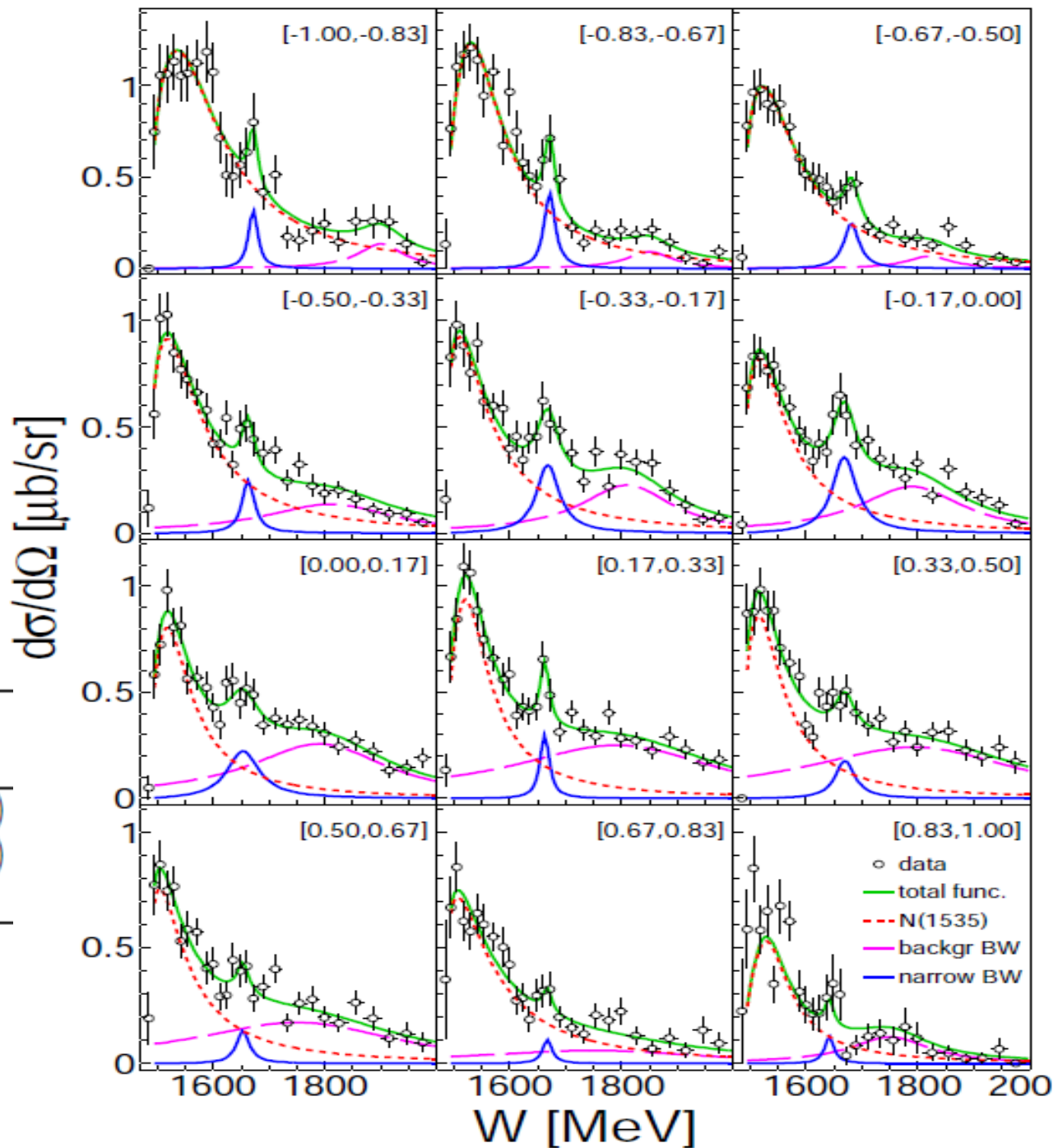


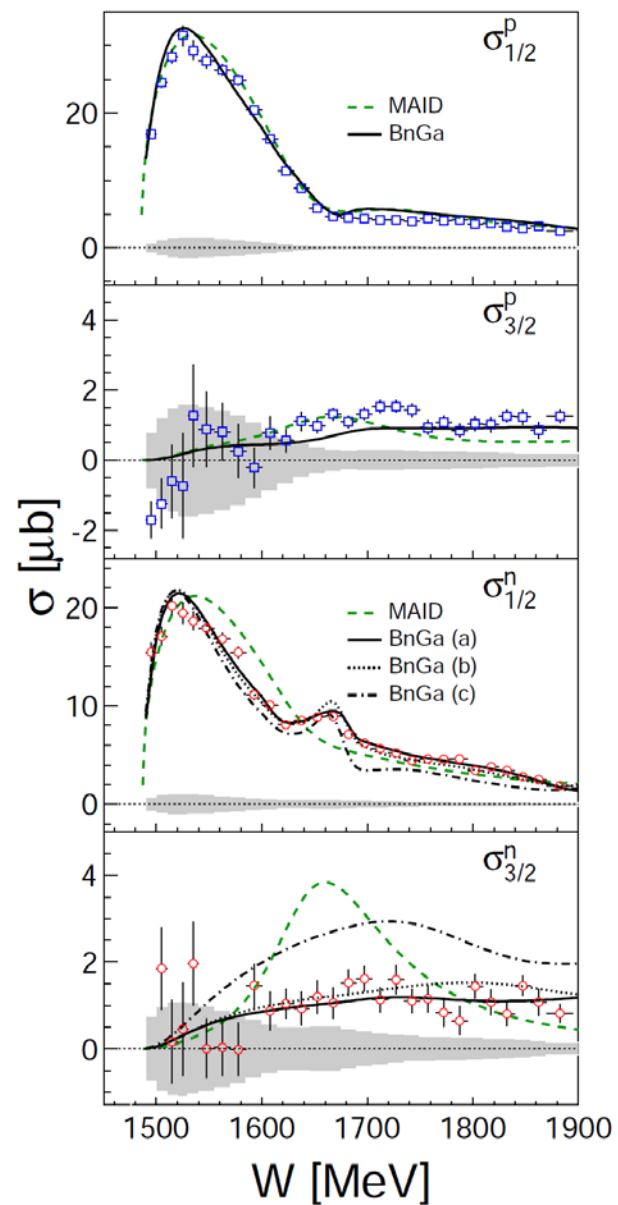
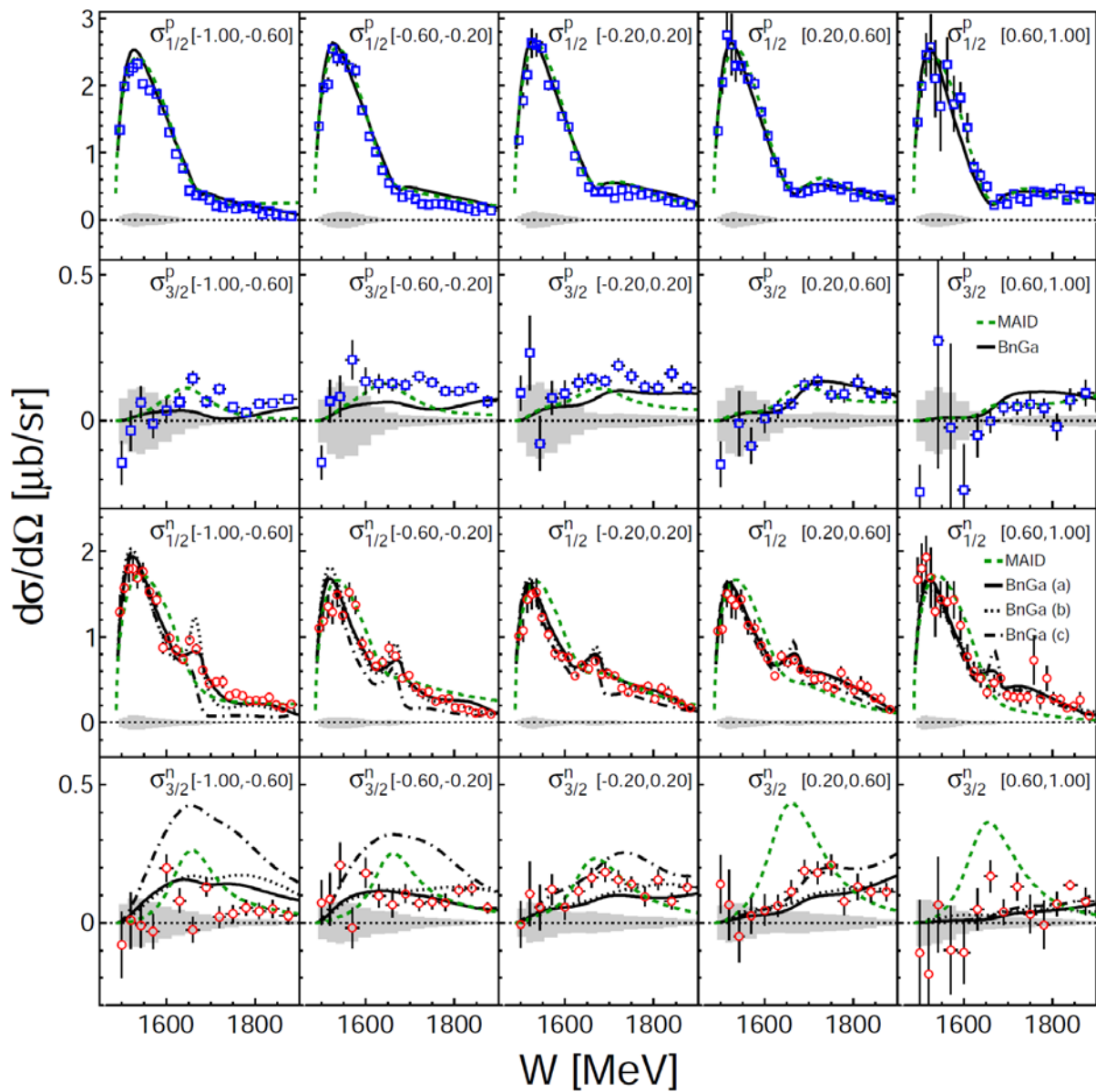
Fig. 28. Ratio of neutron and proton cross section as a function of the final state energy W . The data of this work (red dots) are compared to previous results by Werthmüller *et al.* (red circles) [40] and Jaegle *et al.* (green triangles) [36]. The dashed line marks the ratio of $\sigma_n/\sigma_p = 2/3$, which was already seen in earlier experiments [26,27,30] and is expected from the excitation of the $N(1535)1/2^-$ state.

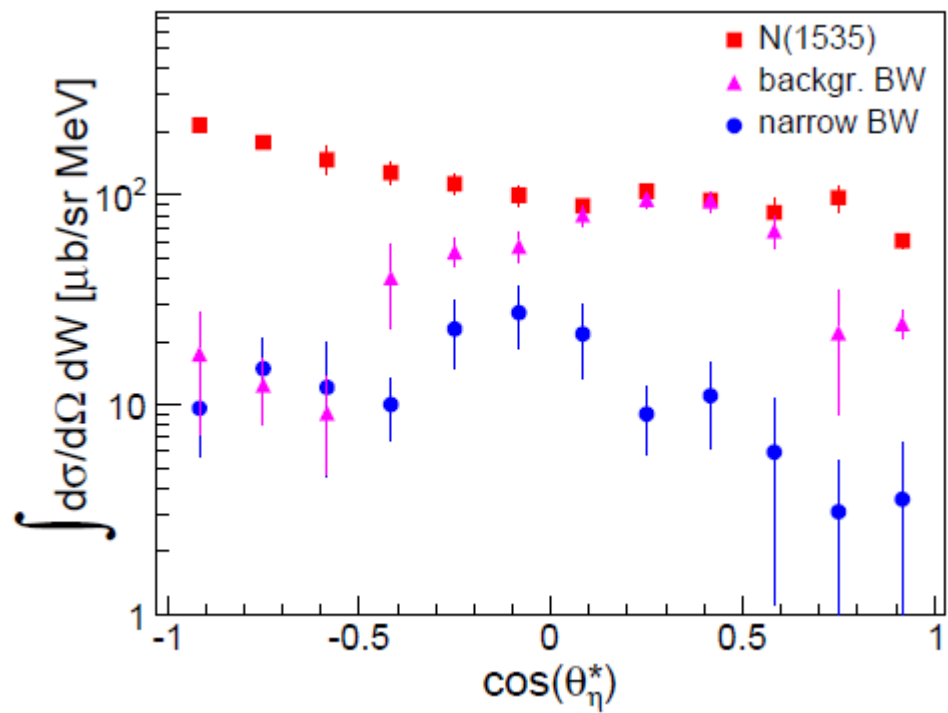
$$M_{K^0} + M_{\Sigma^0} = 1690.3$$

$$M_{K^+} + M_{\Sigma^-} = 1691.2$$



		W_R [MeV]	Γ [MeV]
narrow structure	this work	1667 ± 3	35 ± 3 (23 ± 2)
	[38]	1670 ± 1	50 ± 2 (29 ± 3)
	[36]	1663 ± 3	25 ± 12

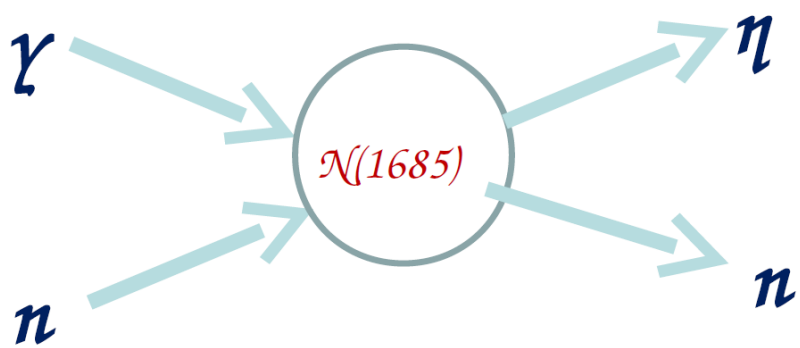




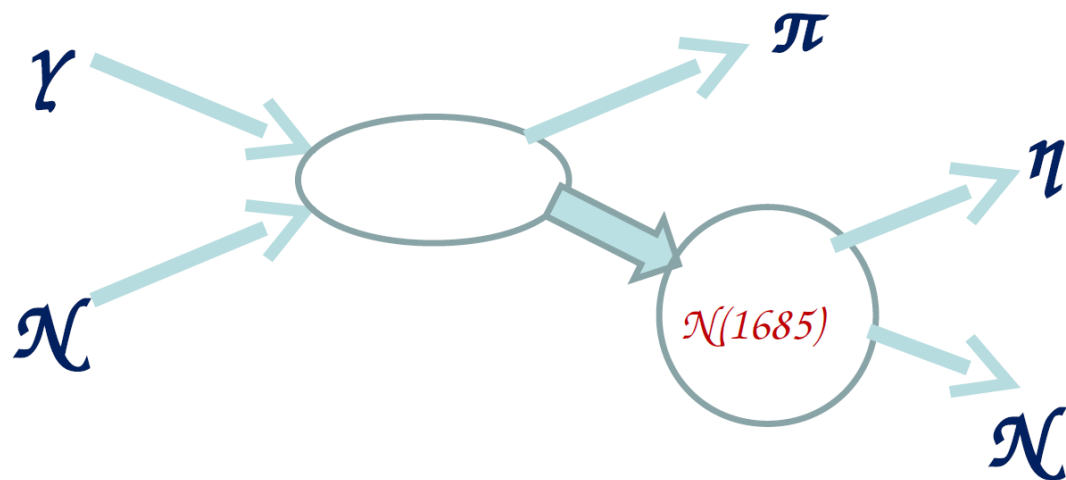
$$\mathbf{G} = I_0 + I_1 \cos(\theta)$$

$$\mathbf{H} = I_1 \sin(\theta)$$

$$\frac{d\sigma}{d\Omega} = |\mathbf{G}|^2 + |\mathbf{H}|^2 = I_0^2 + I_1^2 + 2I_0 I_1 \cos(\theta)$$



Formation of $N(1685)$



Production of $N(1685)$

Search for $\mathcal{N}^(1685)$ resonances in*

$$\gamma p \rightarrow \pi^0 \eta p$$

$$\gamma p \rightarrow \pi^+ \eta n$$

$$\gamma d \rightarrow \pi^+ \eta n(n)$$

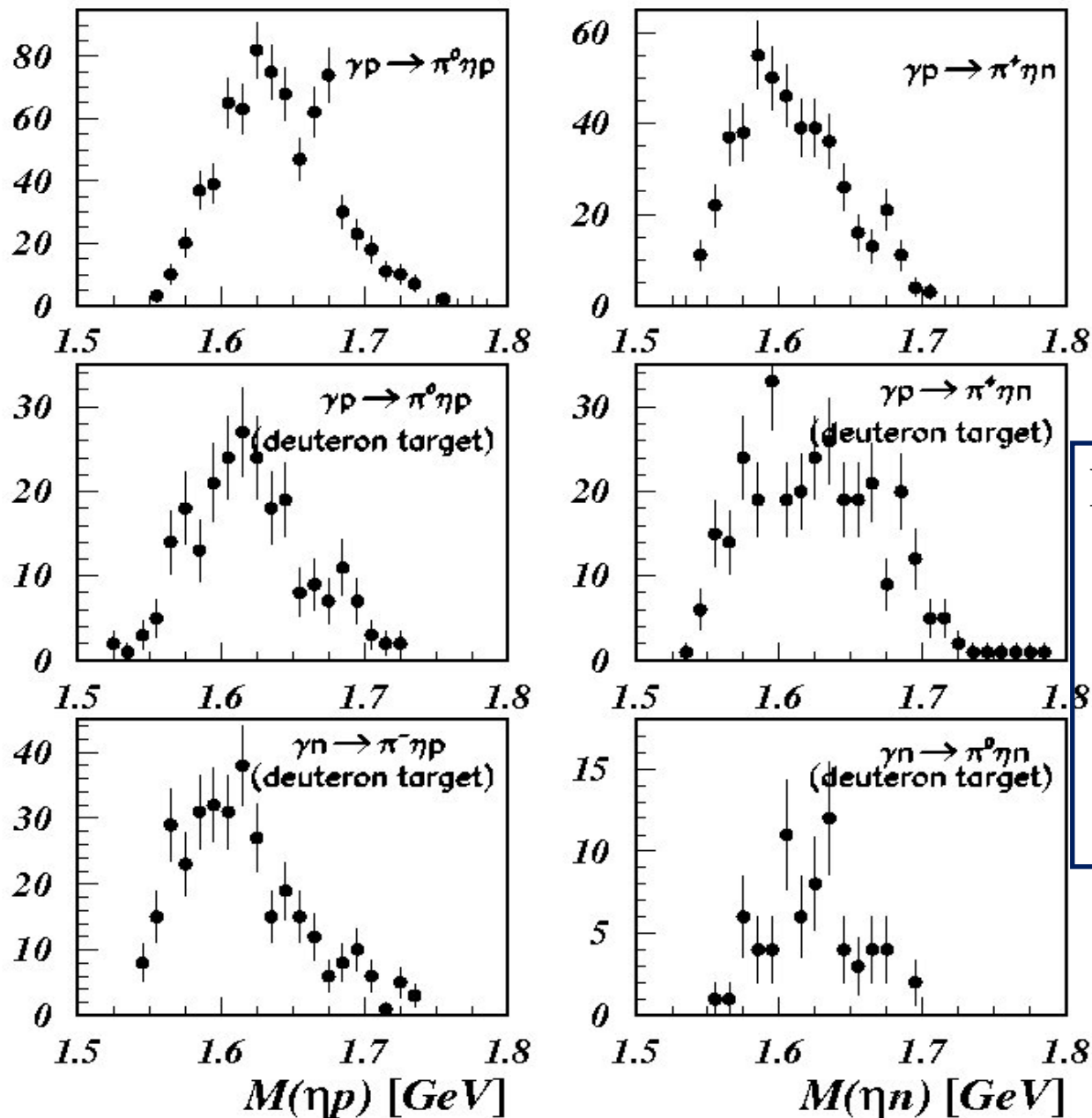
$$\gamma d \rightarrow \pi^0 \eta p(n)$$

$$\gamma d \rightarrow \pi^- \eta p(p)$$

$$\gamma d \rightarrow \pi^0 \eta n(p)$$

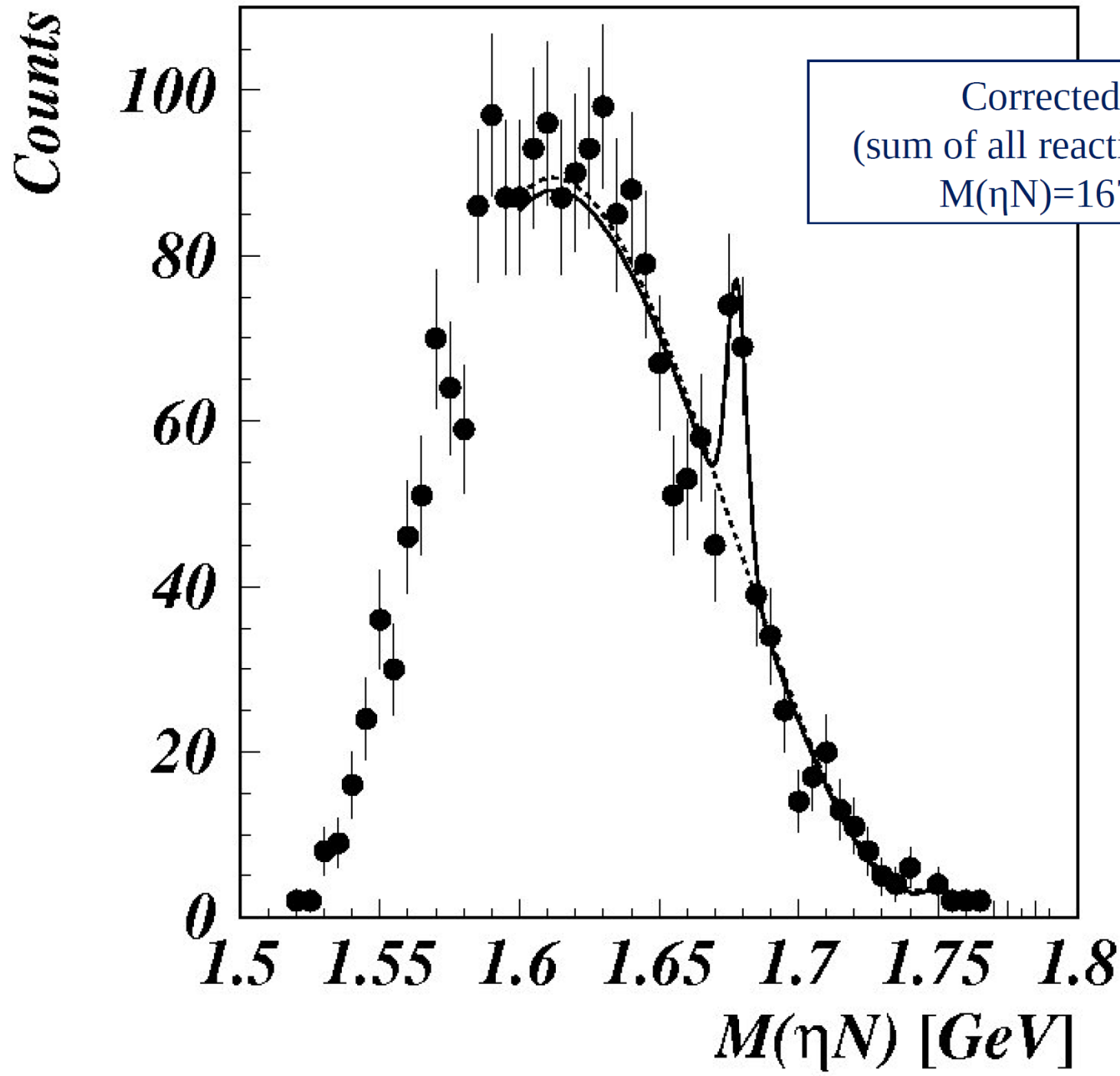
New analysis of the GRAAL data

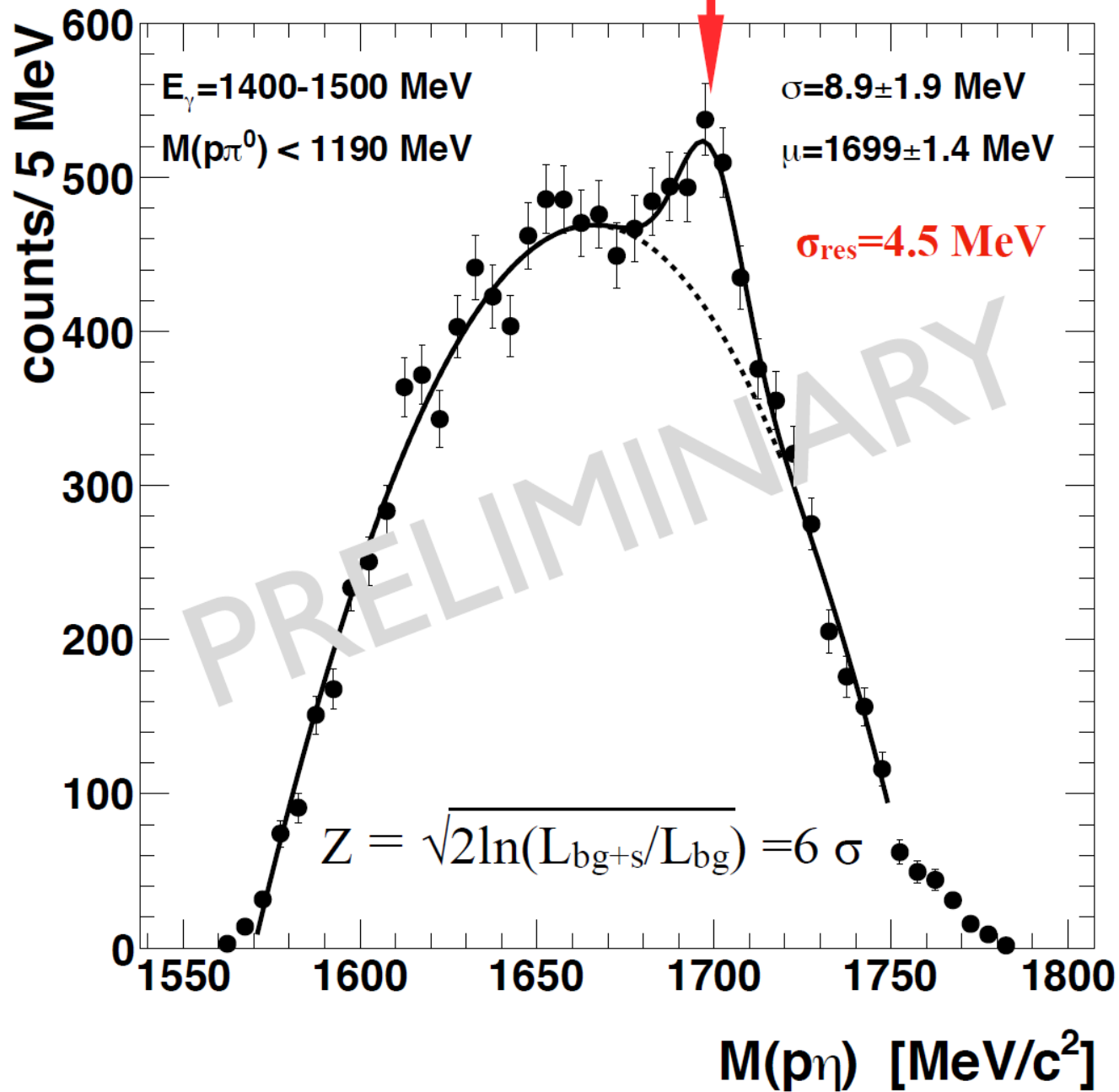
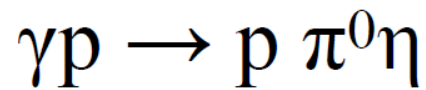
Spectra of extracted η N masses



Peaks near ~ 1.68 GeV
in the $M(\eta p)$ and $M(\eta n)$
spectra .

$N^+(1685)$ and $N^0(1685)$
resonances?





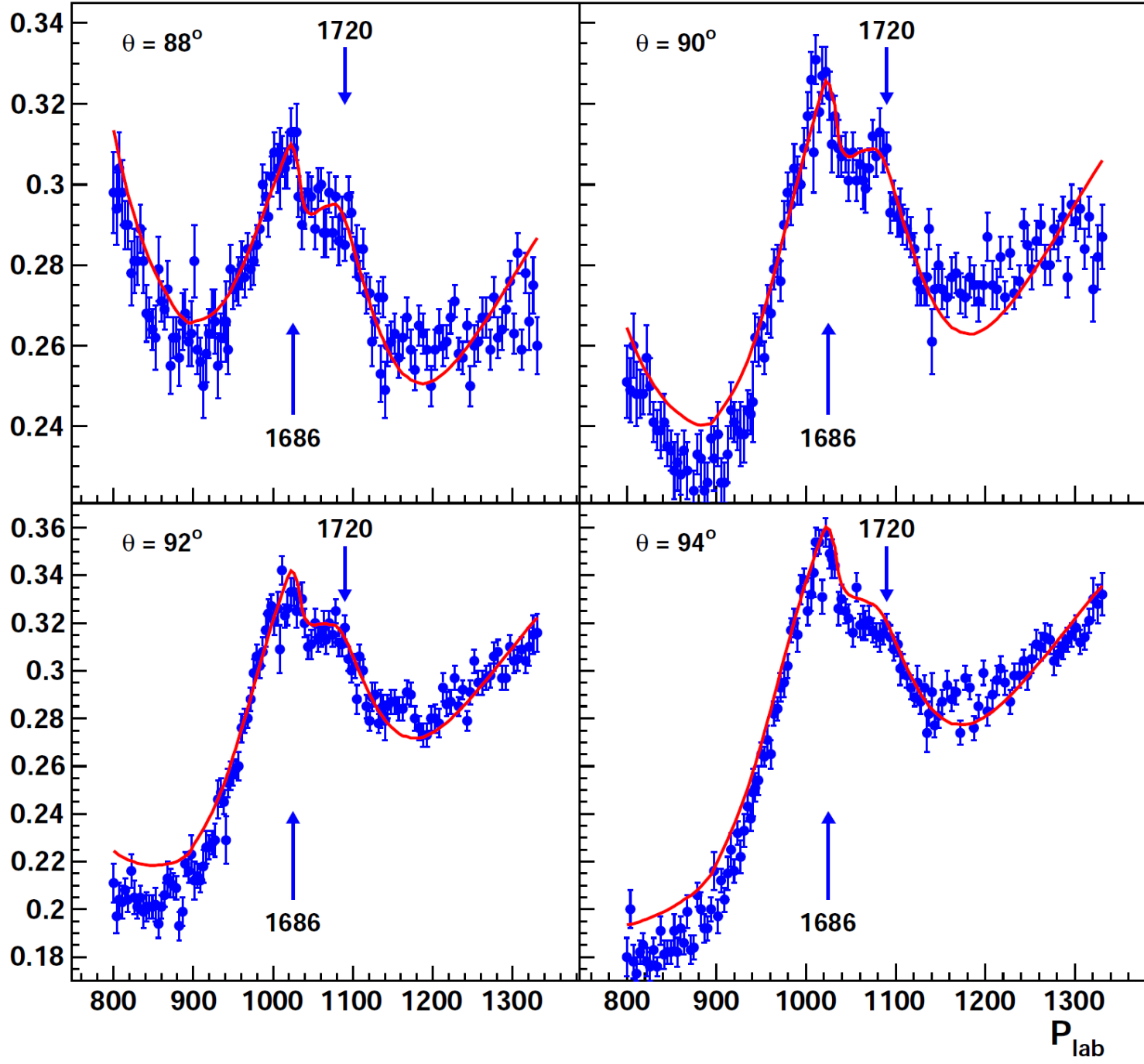
M=1700 MeV

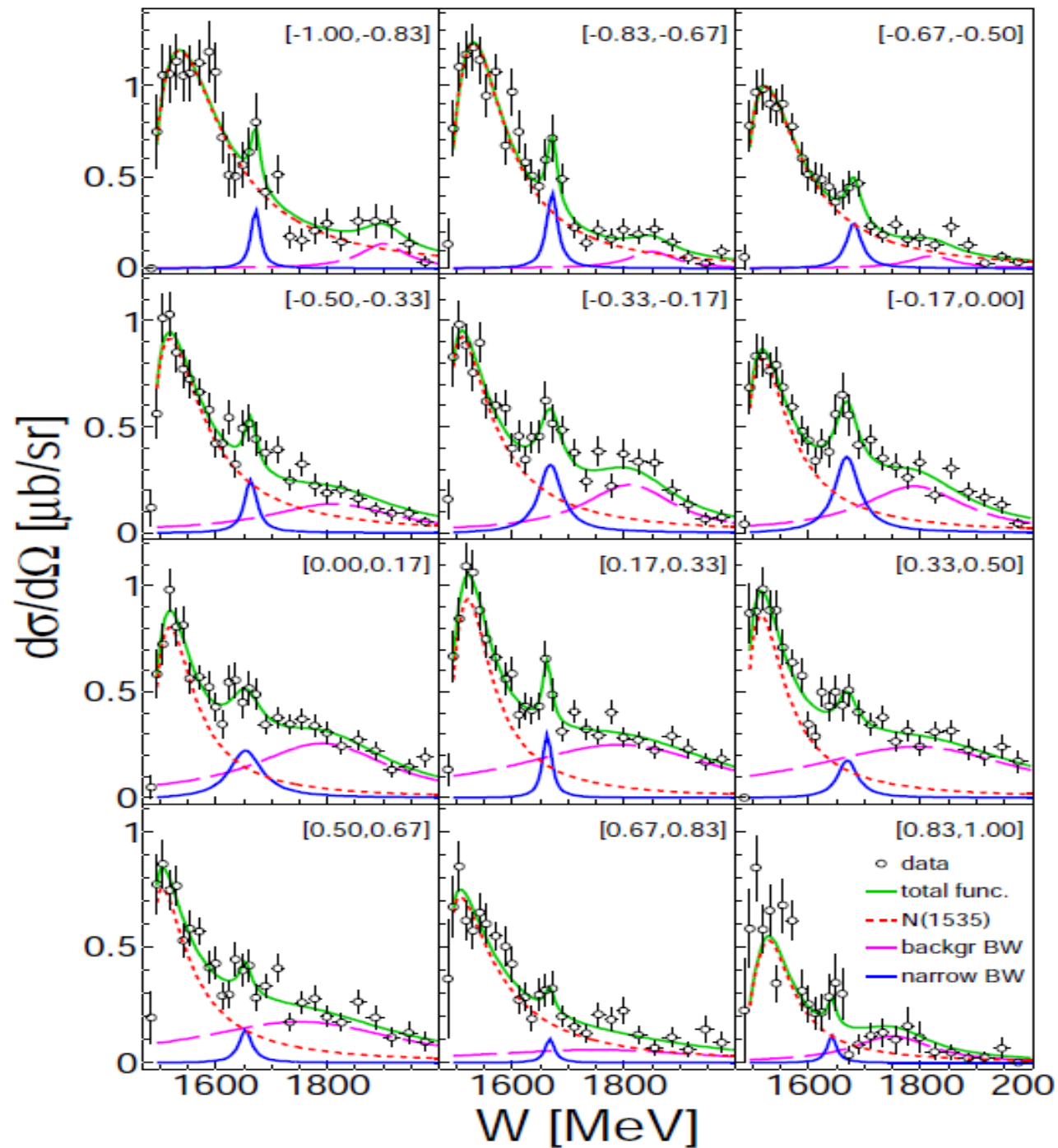
$\pi + N \quad P \approx 600 \text{ Mev/C}$

$\eta + N \quad P \approx 400 \text{ Mev/C}$

$K + \Lambda \quad P \approx 200 \text{ Mev/C}$

$d\sigma / d\Omega$, mb/sr





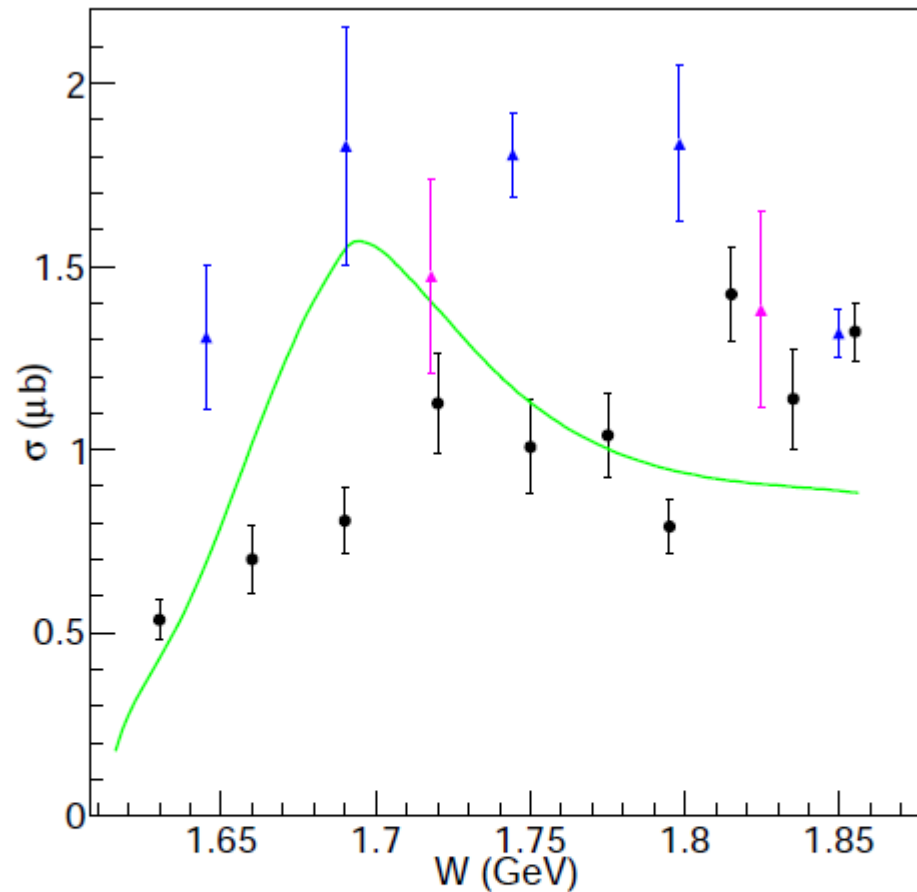


FIG. 10. Integrated cross section for $\gamma n \rightarrow K^0 \Lambda$. The solid black circles represent our results. The solid magenta triangles and solid blue triangles respectively show the g10 and g13 results from Compton *et al.* [10]. The solid green curve shows a prediction [30] based upon a partial-wave analysis.

Благодарю за внимание!

Total Cross Section

