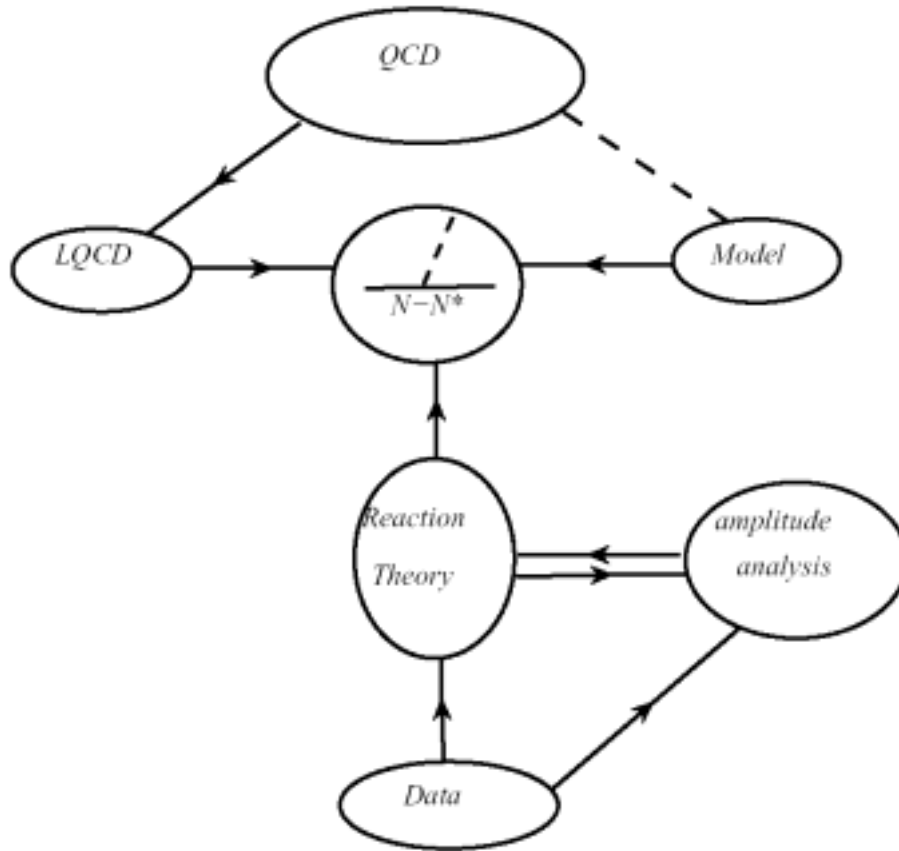


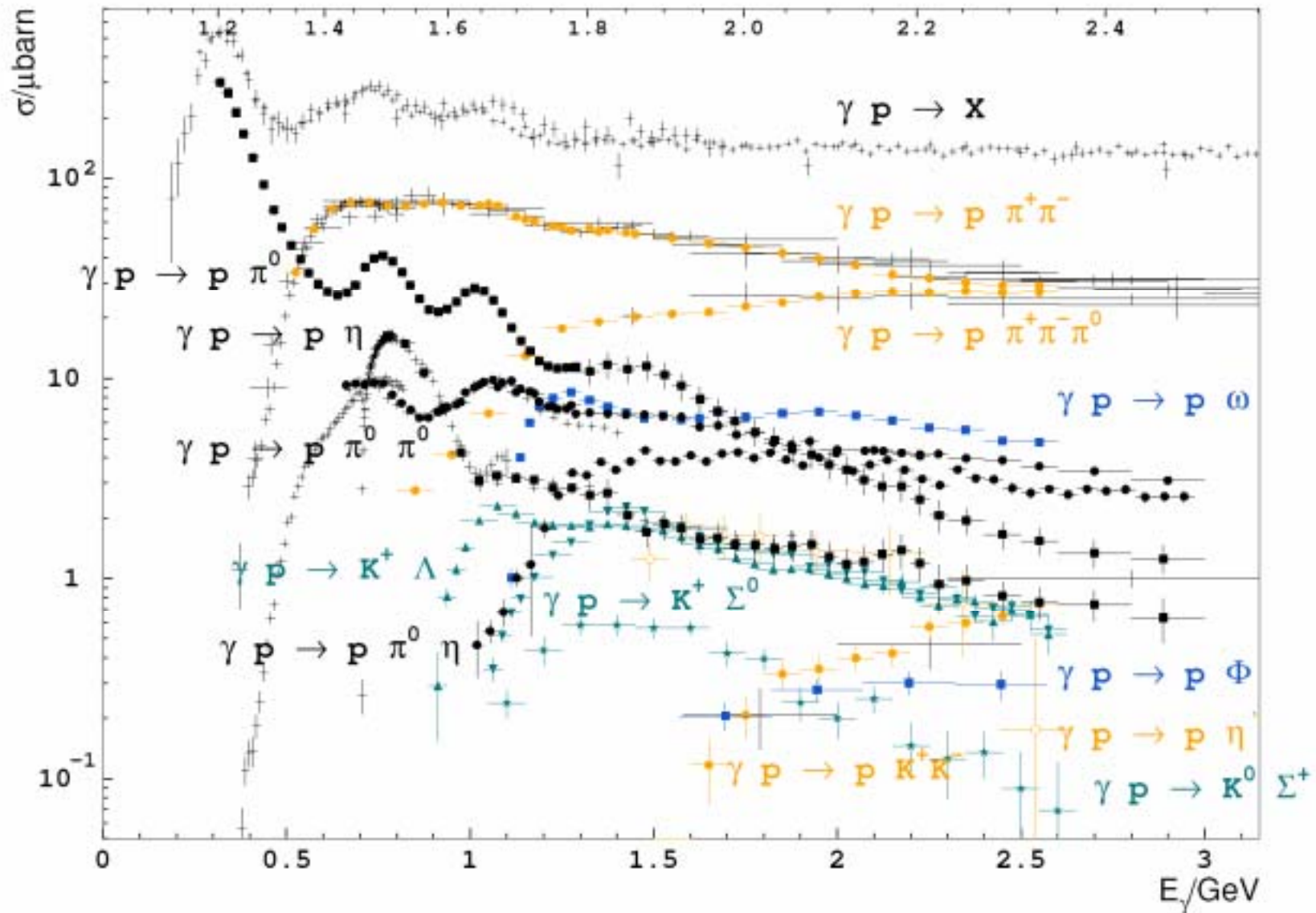
Meson production and baryon resonance

T. Sato (Osaka Univ.)

- Nucleon resonance study from meson production
- Pion photoproduction above 2GeV
Non-perturbative to perturbative
induced polarization p_y

Meson photoproduction and nucleon resonance





Pion production \rightarrow N^* , Delta resonances

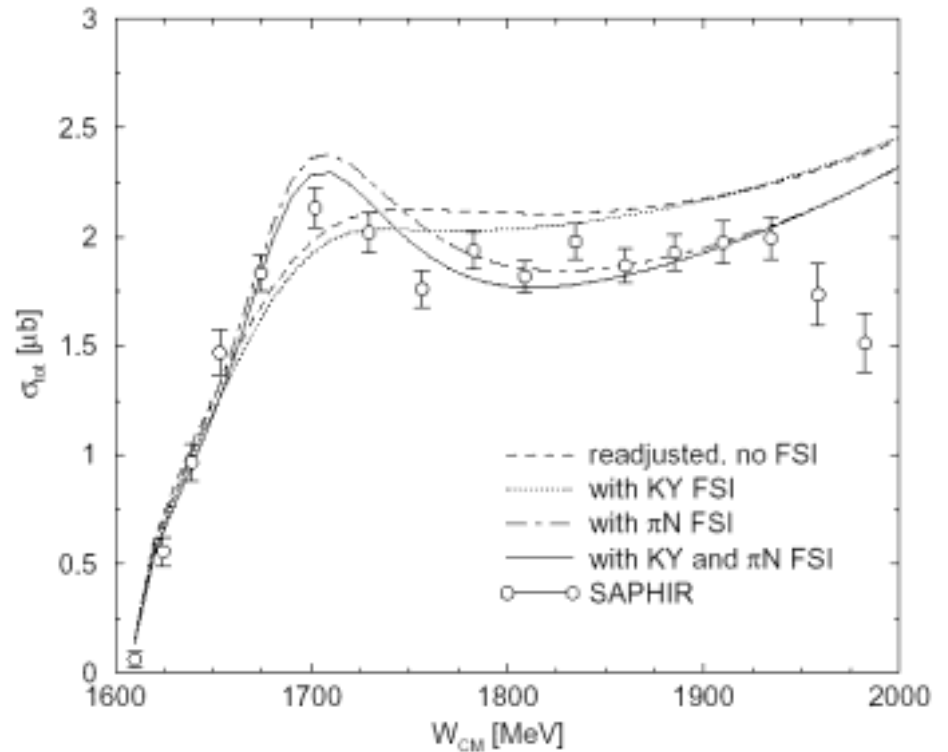
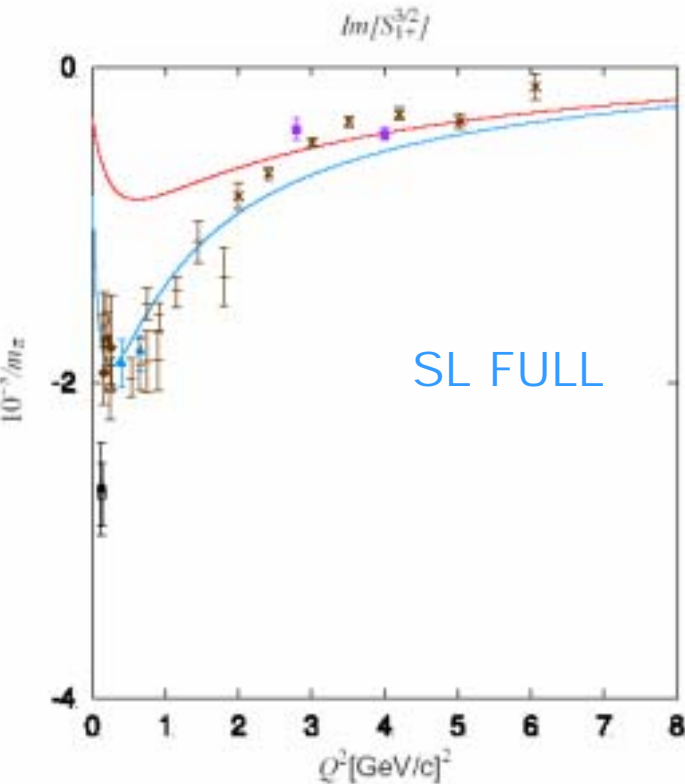
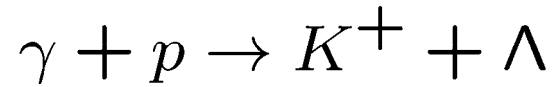
Y^*+K production \rightarrow missing N^*

It may be more interesting to use open strangeness to study Y^*

Use q^2 Q system to investigate color 3^* , $B=2/3$ system

Importance of coupled channel effects

N-Delta quadrupole transition



Coupled channel study must be done to extract N^* parameters

K-matrix method Giessen group
 nucl-th/0505010

Cutkosky Model Pitt-FSU

Dynamical model DMT, Shizuoka-Osaka-ANL(SOA)

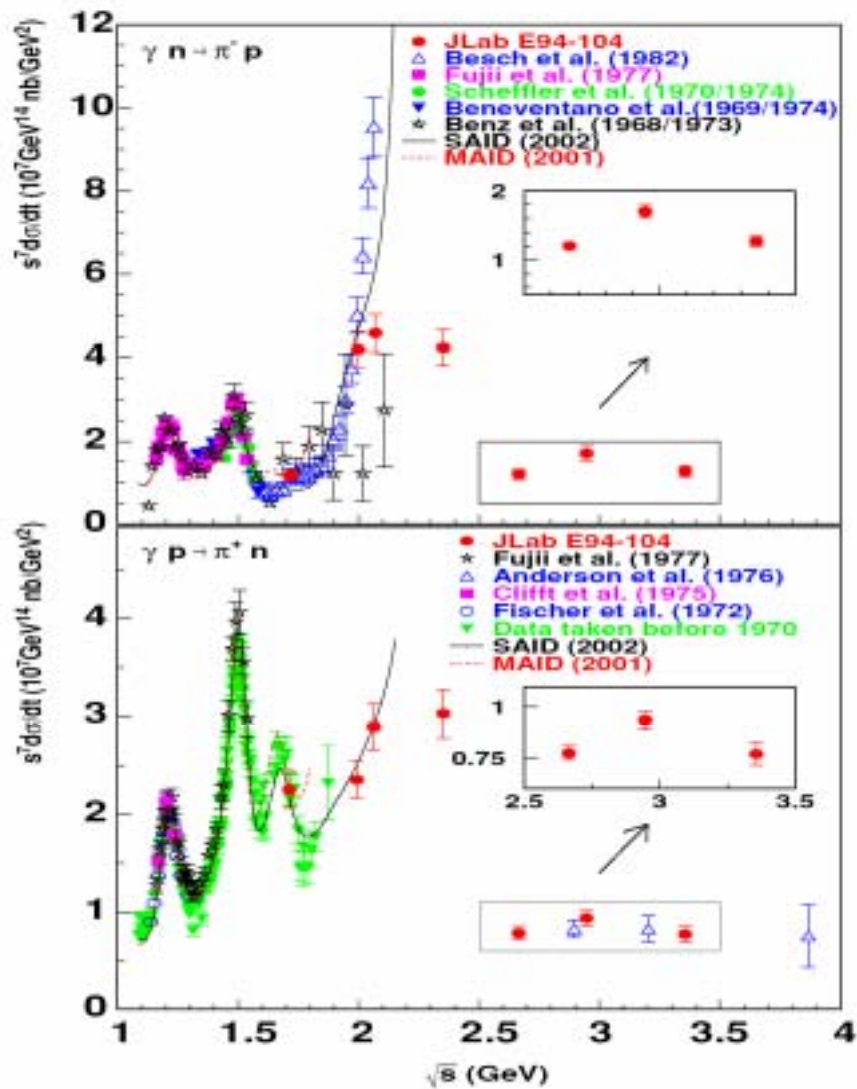
SOA: $\pi\pi N$ three body unitarity

→ systematic data set

Transition from Non-perturbative to perturbative?

$$\theta_{cm} = 90^\circ$$

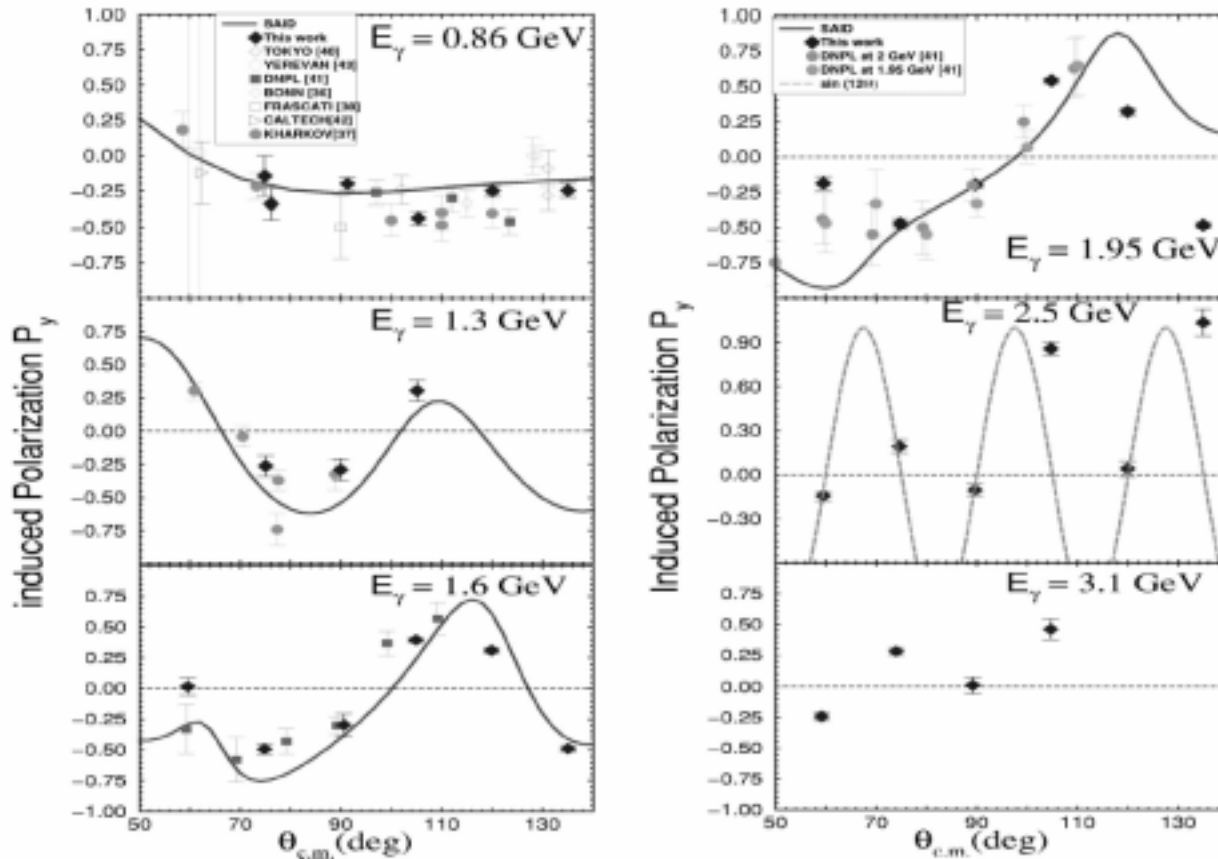
Onset of scaling?



$$\vec{\gamma} + p \rightarrow \pi^0 + \vec{p}$$

$$C_x, C_z, p_y$$

Induced polarization p_y



High spin state
of baryon?

N

-

+

2600 I 11 **
 2250G 9 ****
 2190G 7 ****

2700 K13 **
 2220 H 9 ****

Delta

-

+

2750 I13 **
 2400G 9 **
 2200G 7 *

2950 K15 **
 2420 H11 ****
 2300 H 9 **
 2390 F 7 *
 1950 F 7 ****

Lambda

-

+

2100 G 7 ****

2350 H 9 ***
 2020 F 7 *

Sigma

-

+

2100 G 7 *

2030 F 7 ****

PDG

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