

# Double Regge stuff

Alessandro Pilloni

FDSA2024, Genova, January 23<sup>th</sup>, 2024

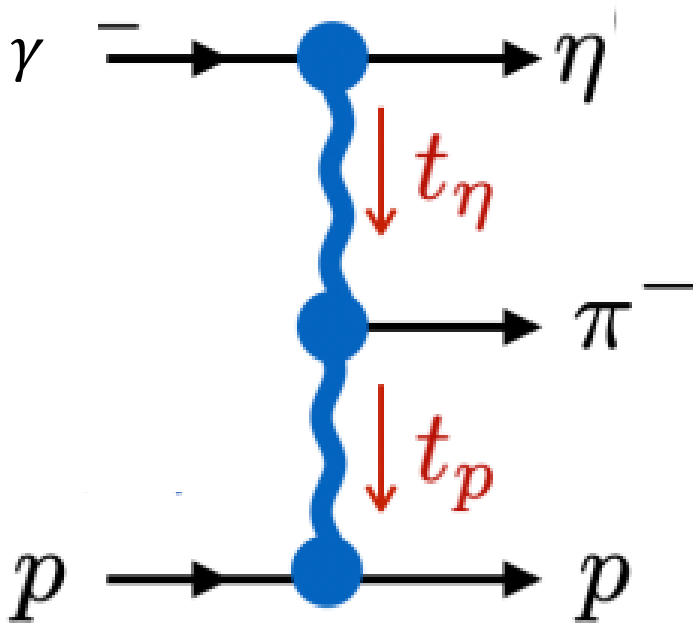


Università  
degli Studi di  
Messina



Istituto Nazionale di Fisica Nucleare

# Photoproduction generalities



$$A \sim s_1^{\alpha(t)} s_2^{\alpha(t)} \exp t_1 \exp t_2$$

$$s, s_1, s_2 \gg -t_1, -t_2, m_i^2$$

$$\frac{s}{s_1 s_2} = \text{fixed}$$

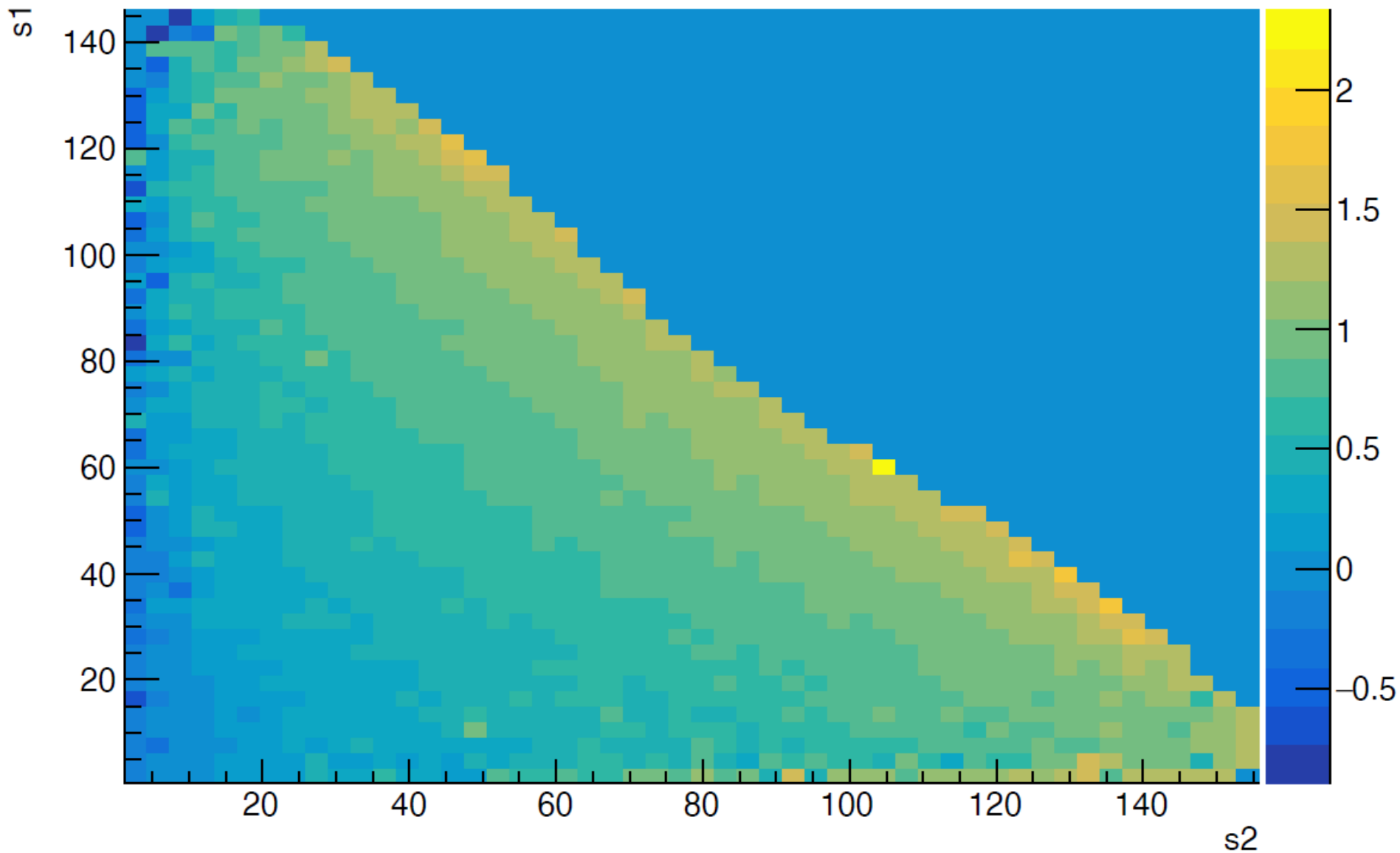
$$\cos \phi \simeq \frac{t_1 + t_2 - m_\pi^2 + \frac{s_1 s_2}{s}}{2\sqrt{-t_1}\sqrt{-t_2}}$$

$$\sqrt{-t_1} + \sqrt{-t_2} \geq \sqrt{\frac{s_1 s_2}{s} - m_\pi^2}$$

$$\sqrt{-t_1} - \sqrt{-t_2} \leq \sqrt{\frac{s_1 s_2}{s} - m_\pi^2}$$

$\text{COS } \phi - \text{COS } \phi_{\text{Regge}}$

Ebeam = 90 GeV



$$K = s^2(-t_1) \left[ 2 \frac{s_1 s_2}{s} (t_1 + t_2 - m_\pi^2) + [(t_1 - t_2)^2 - 2m_\pi^2(t_1 + t_2) + m_\pi^4] + \left( \frac{s_1 s_2}{s} \right)^2 \right]$$

$$K = s^2(-t_1) [4t_1 t_2 \cos^2 \phi - 4t_1 t_2] = s^2 t_1 \sin^2 \phi$$