

## CERN Exkursion:

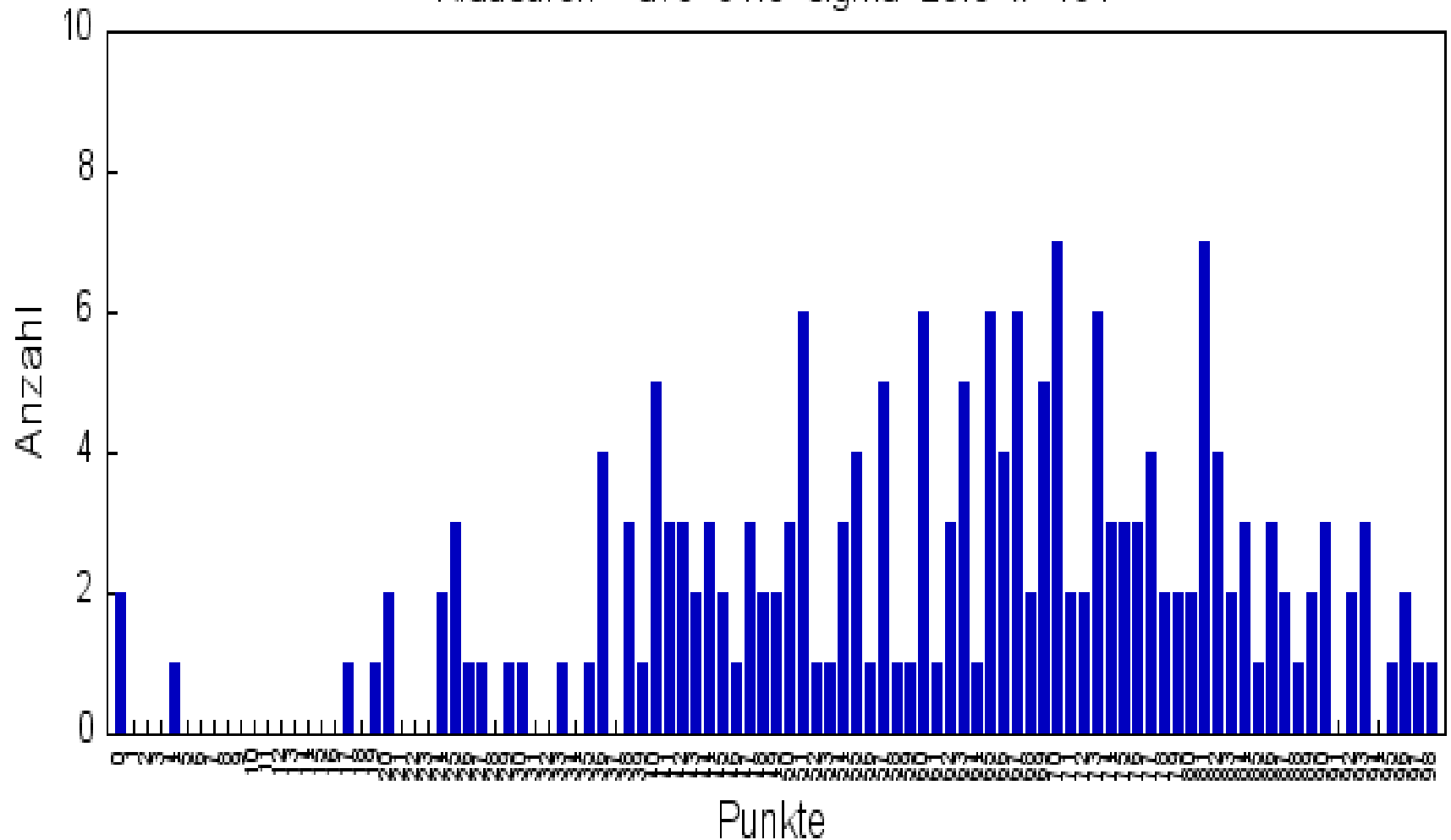
Datum 25./26. Februar 2009

max 92 Teilnehmer (2 Busse)

im Moment ausgebucht, aber Warteliste moeglich

## Klausur:

Klausuren ave=61.3 sigma=20.3 #=191



Impulsverteilung von Quarks und Antiquarks im Nukleon gemessen bei  $q^2 = 10 \text{ GeV}^2$   
 aus Neutrino und Antineutrino-Streuung am Proton bei CERN und Fermilab

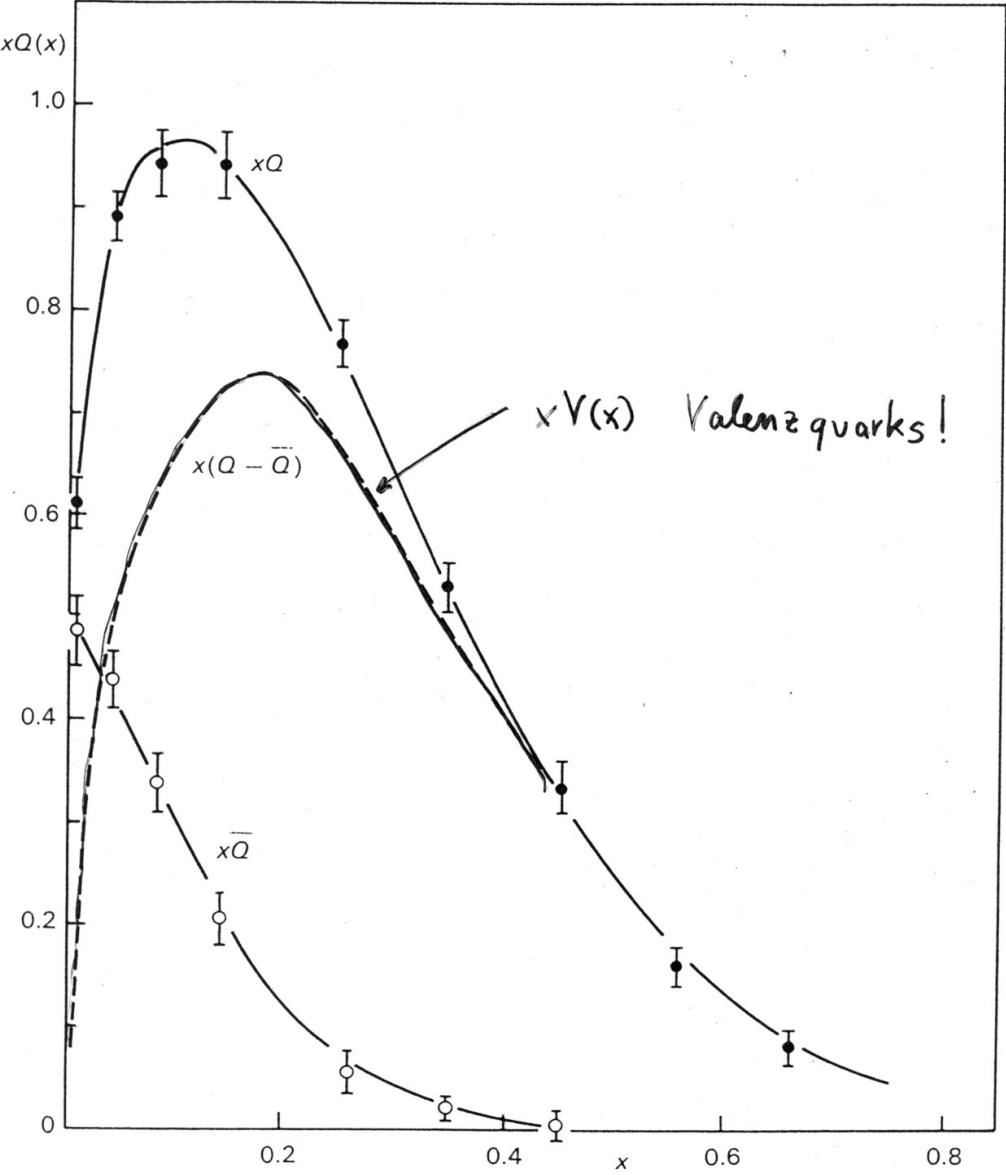
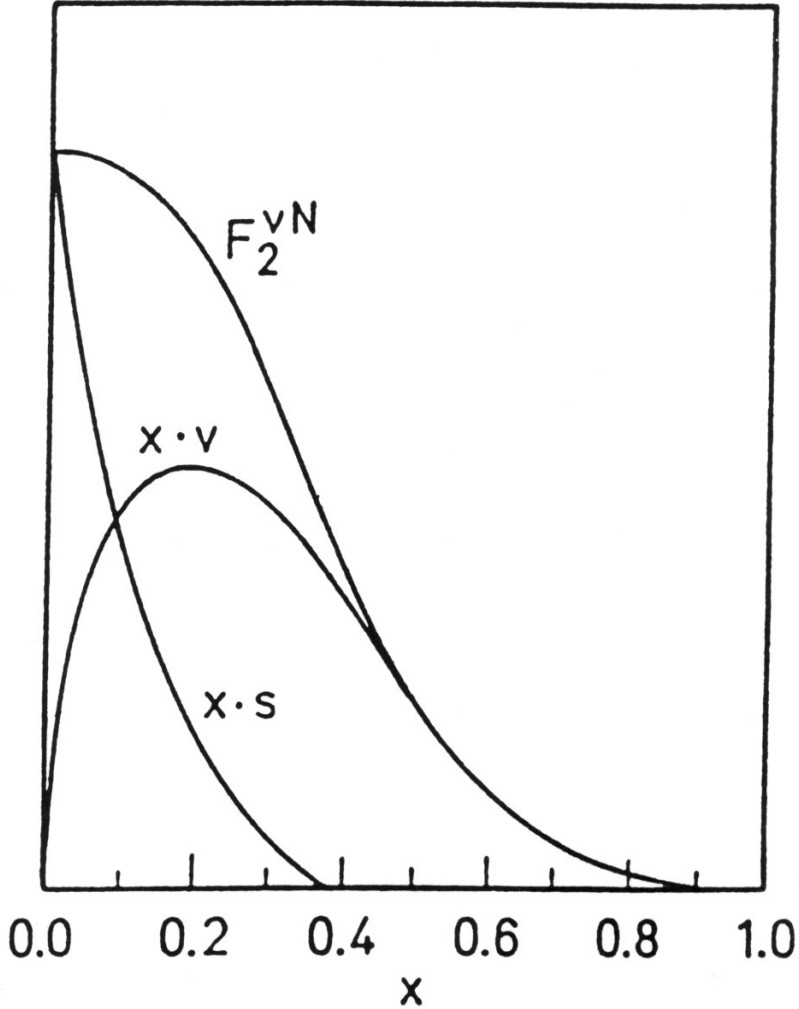


Fig. 6.18

Vergleich Neutrino-Nukleon tief-  
inelastische Streuung (CERN PS) mit  
Elektron-Nukleon Streuung (SLAC)  
bei vergleichbarem  $q^2$

Bestätigung der fraktionalen Quark-  
Ladungen  $1/3$  und  $2/3$

totales Integral unter der Kurve  
misst Impulsbruchteil des Nukleons,  
der von Quarks getragen wird zu  
 $50\%$

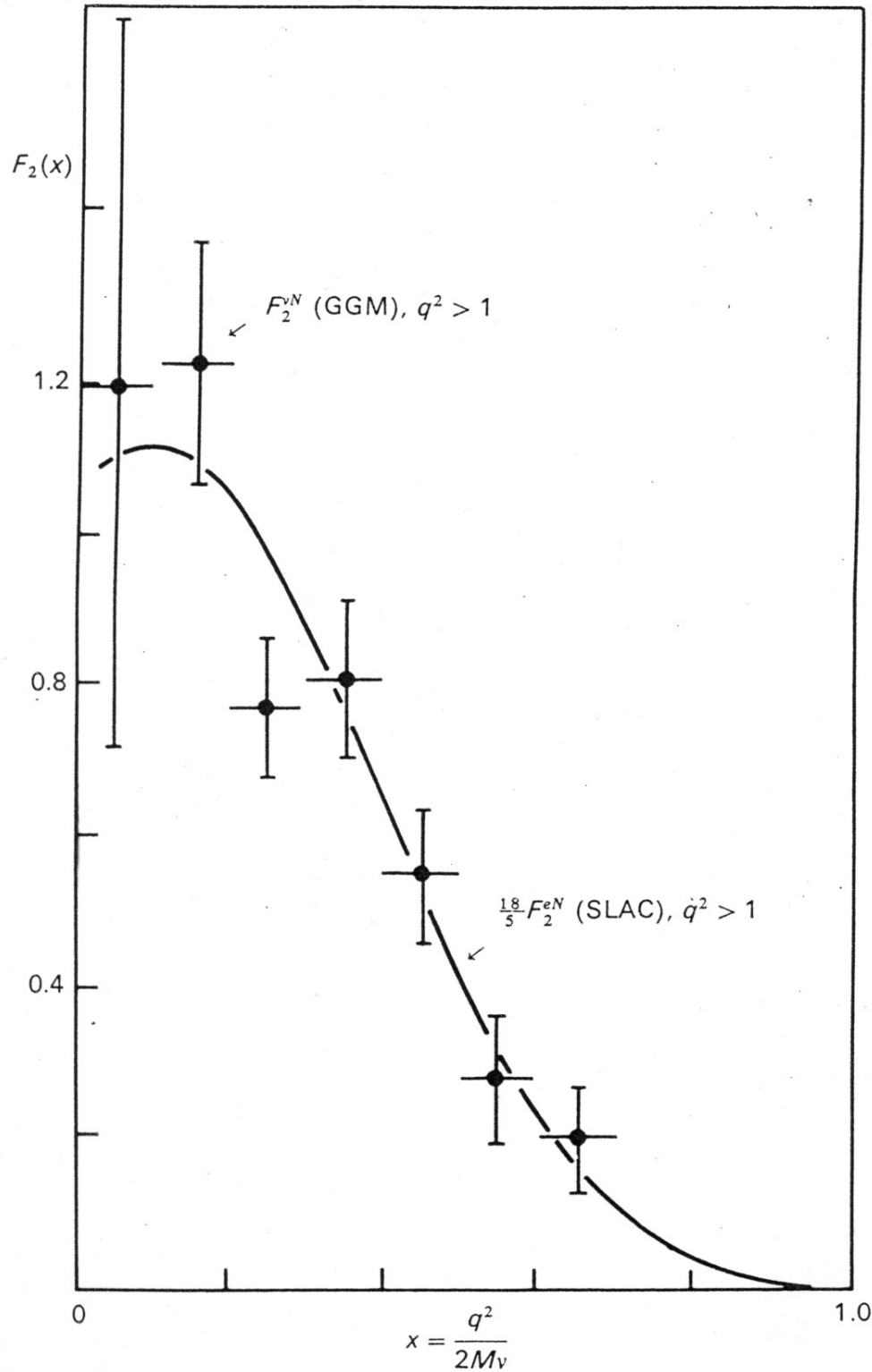
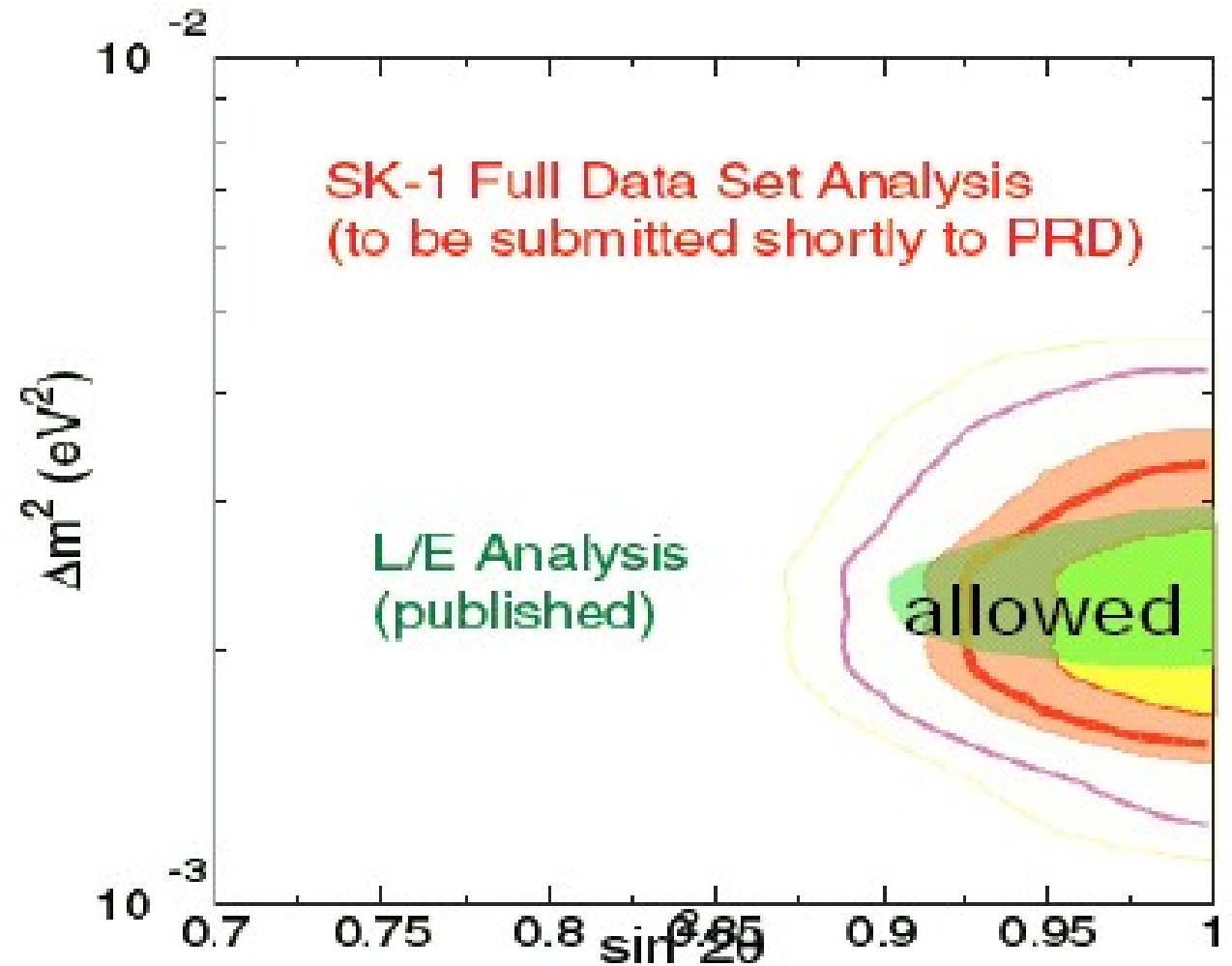


Fig. 6.19

# Evidenz fuer Neutrinooszillation von atmosphärischen Muon-Neutrinos



$\nu_\mu \leftrightarrow \nu_\tau$  mixing of atmos. neutrinos

$$\Delta m^2 = (2.4 \pm 0.4) \times 10^{-3} \text{ eV}^2$$

$$\sin^2 2\theta > 0.92 \text{ @ } 90\% \text{ C.L.}$$

# Evidenz fuer Oszillation von Elektron-Neutrinos von der Sonne

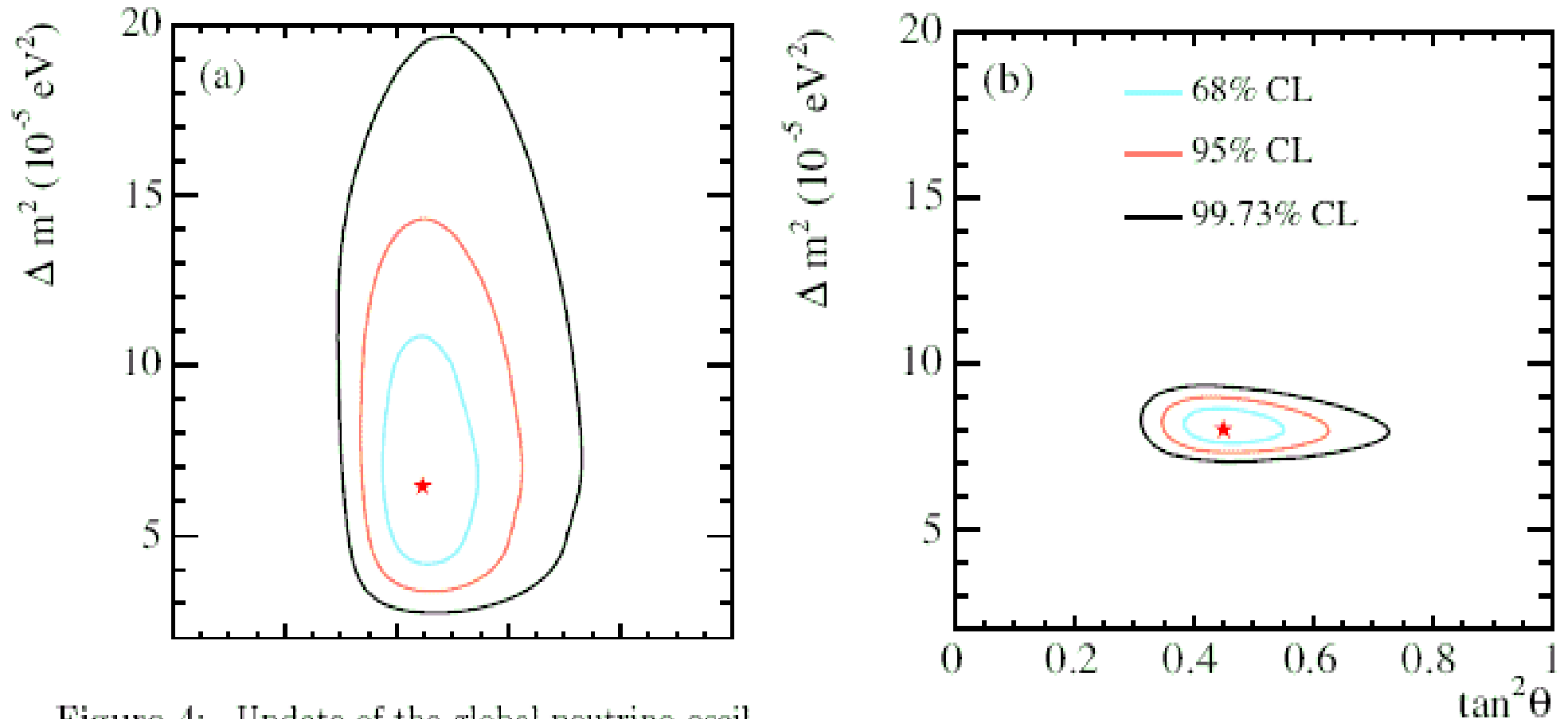


Figure 4: Update of the global neutrino oscillation contours given by the SNO Collaboration assuming that the  $^8\text{B}$  neutrino flux is free and the  $^7\text{Be}$  neutrino flux is fixed. (a) Solar global analysis. (b) Solar global + KamLAND. This figure is taken from Ref. [11]. See full-color version on color pages at end of book.

# Entdeckung des Anti-Omega-Baryons (sss)

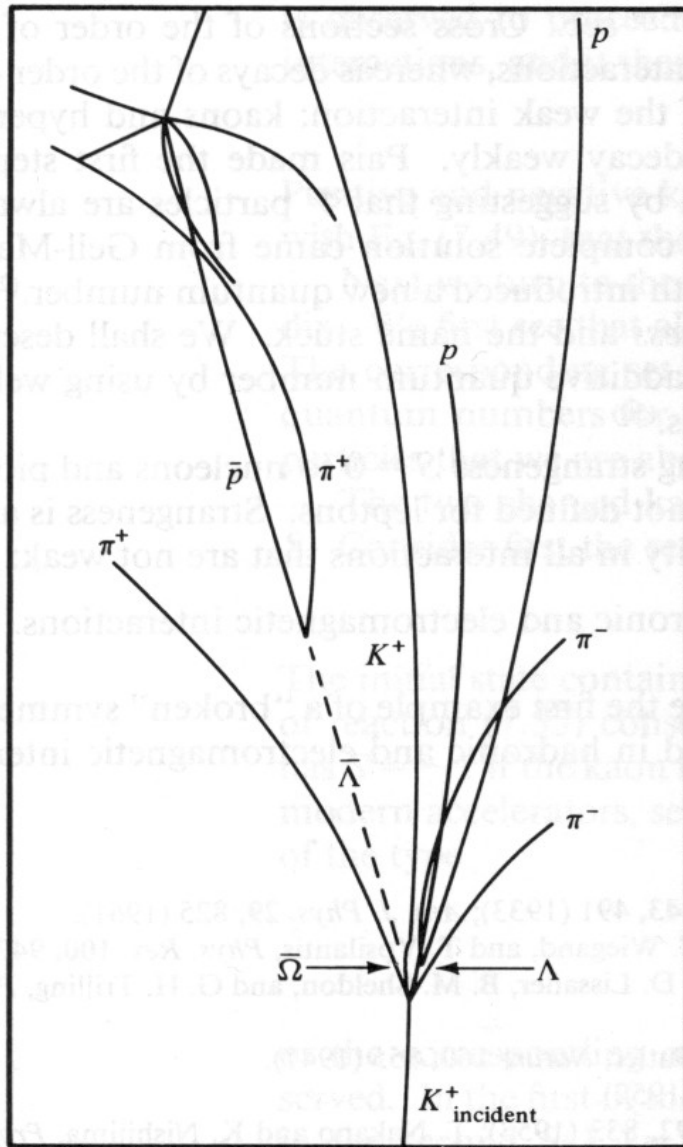


Fig. 7.7. Drawing of the reaction  $dK^+ \rightarrow \bar{\Omega}\Lambda p\pi^+\pi^-$  and the resulting decays. [A. Firestone et al., *Phys. Rev. Lett.* **26**, 410 (1971).]

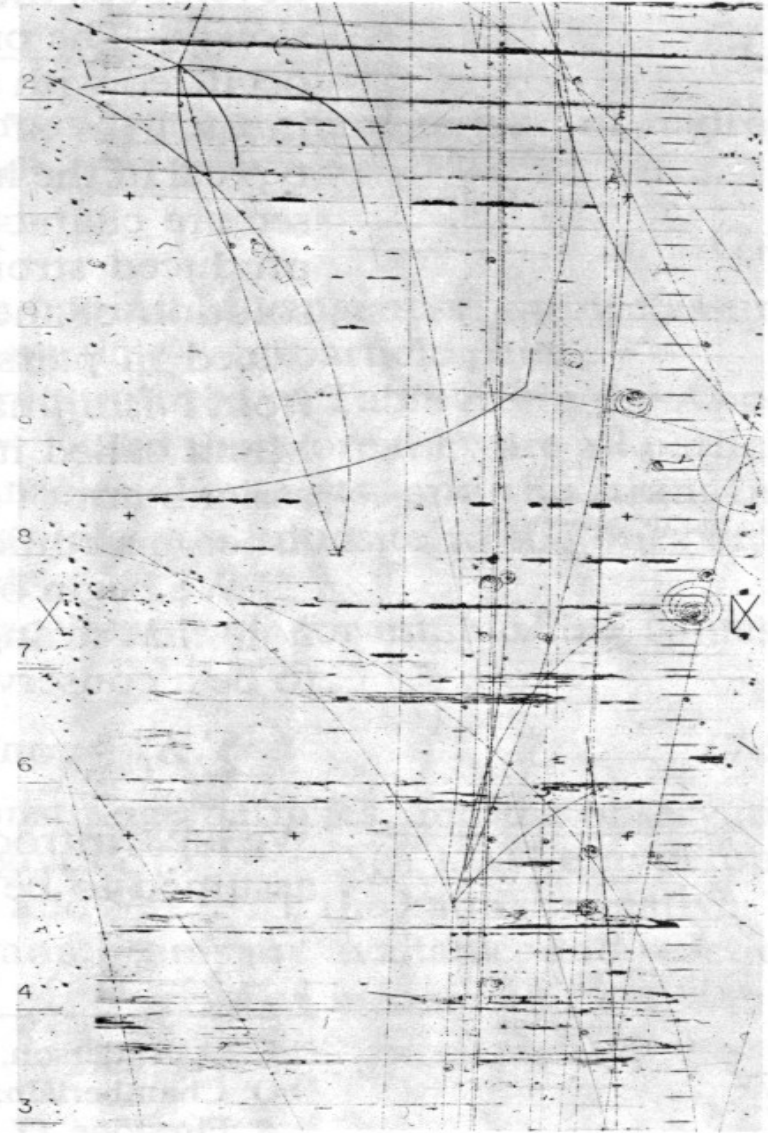


Fig. 7.8. Production of the  $\bar{\Omega}$ , observed in a study of  $K^+d$  interactions at a momentum of 12 GeV/c, in the 2 m SLAC (Stanford Linear Accelerator Center) bubble chamber.<sup>(28)</sup> (Courtesy Gerson Goldhaber, Lawrence Berkeley Laboratory.)