



IV Kaon Mini Workshop

CERN, May 2-nd, 2005

- *I K Mini workshop*
June, 2000
- *II K Mini Workshop*
November 19th, 2002
- *III K Mini Workshop*
May 5th, 2004

NA48 experiments

**Physics: CP-violation, CKM checks,
new physics indication,
 χ PT higher order predictions...
in
Kaon & Hyperon Decays**



Collaboration NA48:

Cambridge, CERN, Chicago, Cagliari,
Dubna, Edinburgh, Ferrara, Firenze,
Mainz, Northwestern, Perugia, Pisa, Orsay,
Saclay, Siegen, Torino, Warsaw, Wien

Experiments: NA48, NA48/1, NA48/2,
Future program



- **NA48** simultaneous K_S and K_L beams
 ϵ'/ϵ , K_S , K_L & hyperon decays
1997 *nominal intensity run*
1998 -"-
1999 -"-
2001 *low instantaneous intensity run*
- **NA48/1** **2000** Phase I (*no spectrometer*):
 K_S & K_L decays
2002 Phase II (*high intensity run*):
 K_S & hyperon decays
- **NA48/2** simultaneous K^+ and K^- beams
2003 - 2004 > **4B** K^\pm decays



NA48 data has specific features:

- large (*record*) statistics
- high performance of resolution in kinematics
- well balanced symmetry in acceptances of K_L/K_S & K^+/K^- decays



NA48 data allows:

- precise measurements (or best limits) of (on) parameters (*observables*), related to SM:

ϵ'/ϵ , A_g , other **asymmetries**

Br's, **Br's ratios**, **form-factors**

polarization (*hyperons*)



low energy QSD
(χ PT) calculations

- **SM parameters** (*CKM, specific CPV parameters*)



on the other hands,

..

NA48 data allows:

- to check high order χ PT predictions, including the measurement of basic parameters a_0 - a_2 , a_2 (?):
Ke4 decays,
"cusp effect" in K3pi decays

- to search for new phenomena !



*“.....Those,
who is not looking for friends,
has an enemy inside himself....”*

Knight in Panther's Skin

by Shota Rustaveli

(Georgian's poet, 1172-1216)

All of these provides

Good Base for Fruitful Cooperation

With hopes for new ideas