



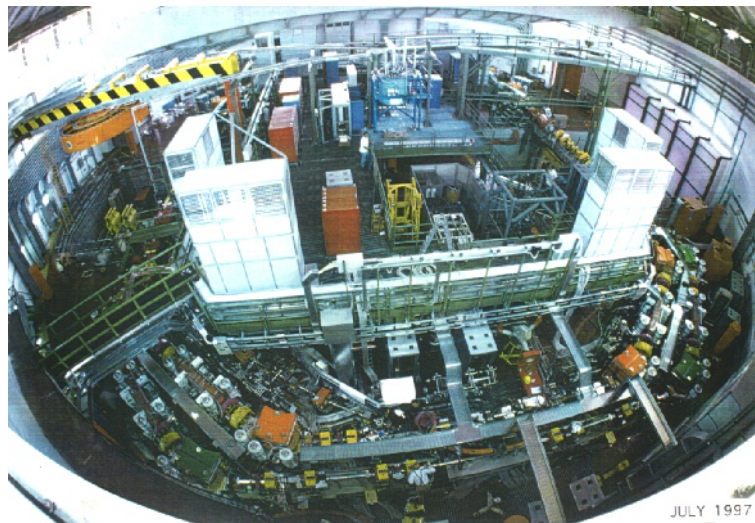
## Avviso di Seminario

Giovedì 24 Giugno 2004  
h. 15,00 – Aula C

Dr. Mariaelena BOGLIONE  
Università di TORINO

### TOWARDS A MODEL INDEPENDENT DETERMINATION OF THE $\Phi \rightarrow f_0(980)\text{-}\gamma$ COUPLING

A guide to the composition of the enigmatic  $f_0(980)$  and  $a_0(980)$  states is their formation in  $\phi$ -radiative decays. Precision data are becoming available from the KLOE experiment at the DAFNE machine at Frascati, as well as results from SND and CMD-2 at VEPP-2M at Novosibirsk. We show how the coupling of the  $f_0(980)$  to this channel can be extracted from these, independently of the background provided by  $\sigma$  production. To do this we use the fact that the behaviour of both the  $f_0(980)$  and  $\sigma$  cannot be determined by these data alone, but is strongly constrained by experimental results from other hadronic processes as required by unitarity. We find that the resulting coupling for the  $\phi \rightarrow \gamma\text{-}f_0(980)$  is around  $10^{-4}$  GeV with a background that is quite unlike that assumed if unitarity is neglected. This provides an object lesson in how unitarity teaches us to add resonances. Not surprisingly the result is crucially dependent on the pole position of the  $f_0(980)$ , for which there are still sizeable uncertainties. At present this leads to an uncertainty in the  $\phi \rightarrow f_0\text{-}\gamma$  branching ratio which can only be fixed by further precision data on the  $f_0(980)$ .



JULY 1997

The DAFNE main rings at LNF