

NTA ILC@LNF:

Activities from Sept. 2010 to March 2011

David Alesini

Kickers rapidi DAΦNE

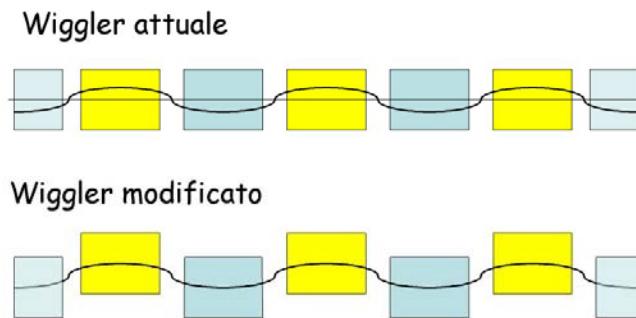
D. Alesini et al., Design, test, and operation of new tapered stripline injection kickers for the e+e- collider DAΦNE, PRST-AB, 111002 (2010)



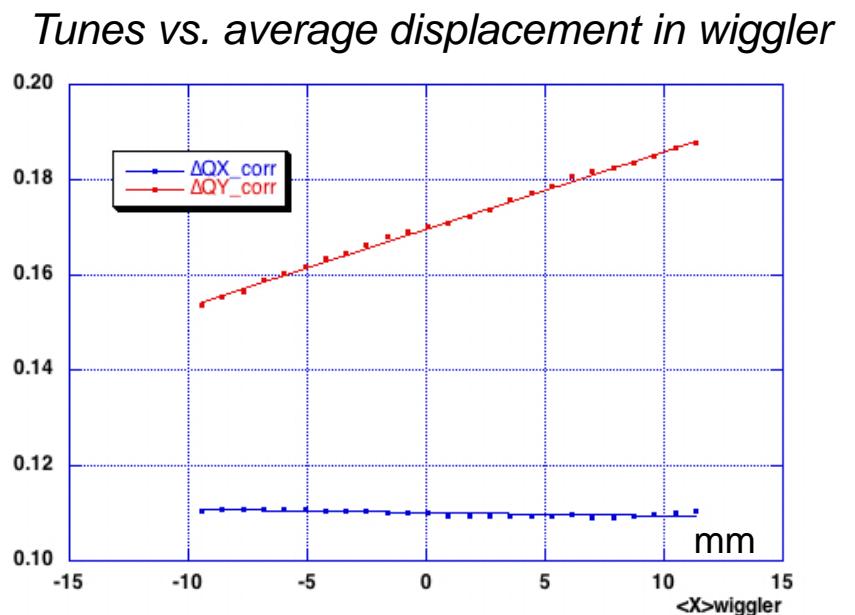
Kickers rapido per ATF2:

Dopo alcuni tests preliminari in laboratorio è stato spedito ed è arrivato a KEK

Modifica poli wiggler DAΦNE

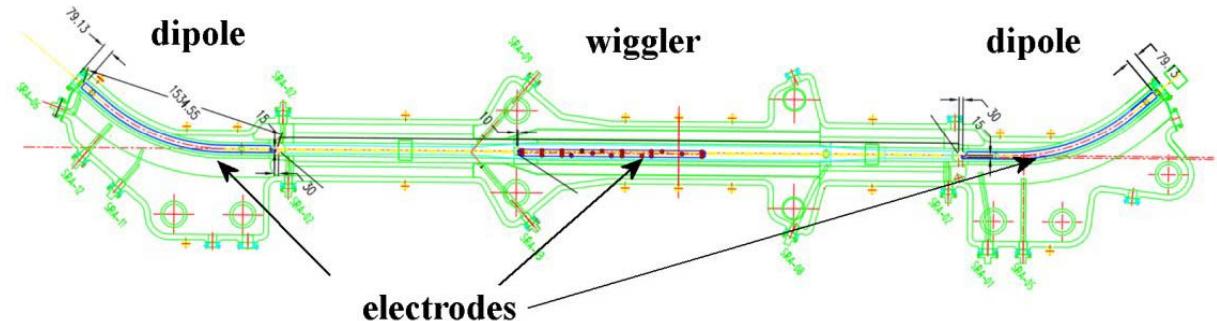
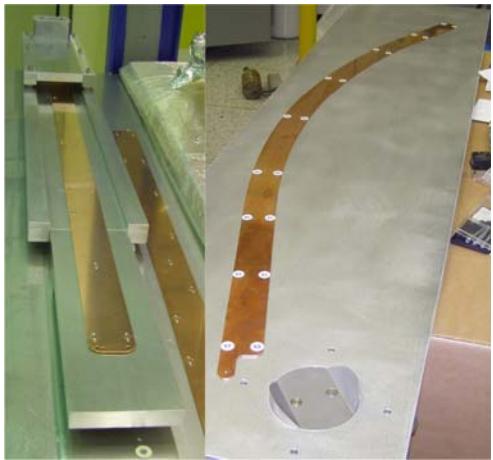


Nel wiggler modificato la traiettoria passa sempre vicino al centro dei poli. In questo modo diminuisce molto il contributo dei termini non lineari del campo magnetico



The tune shift measured as a function of the beam position in the wiggler is linear as expected from simulations

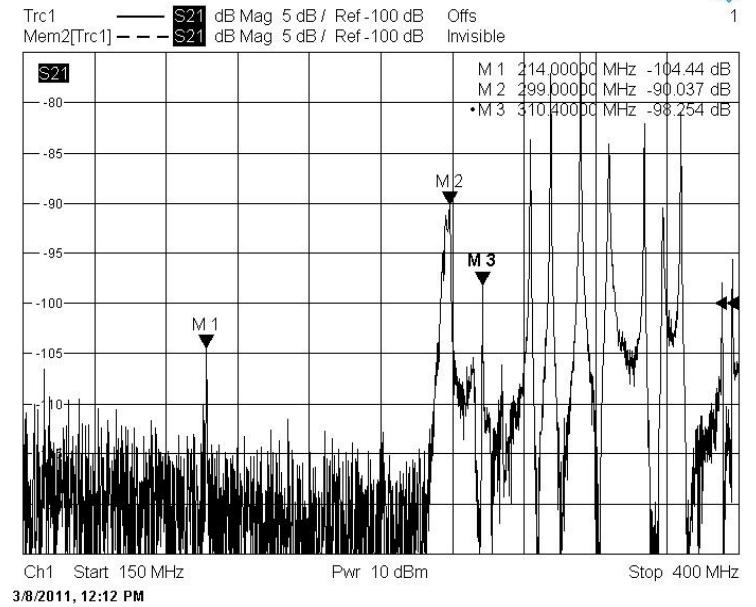
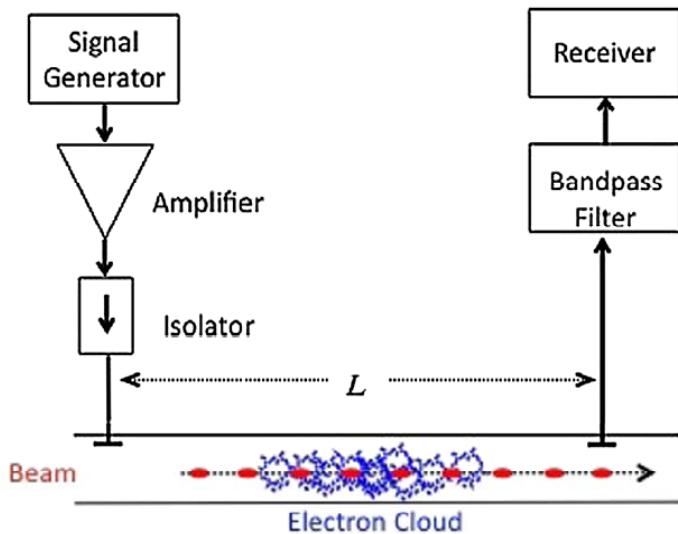
Elettrodi e-cloud DAΦNE



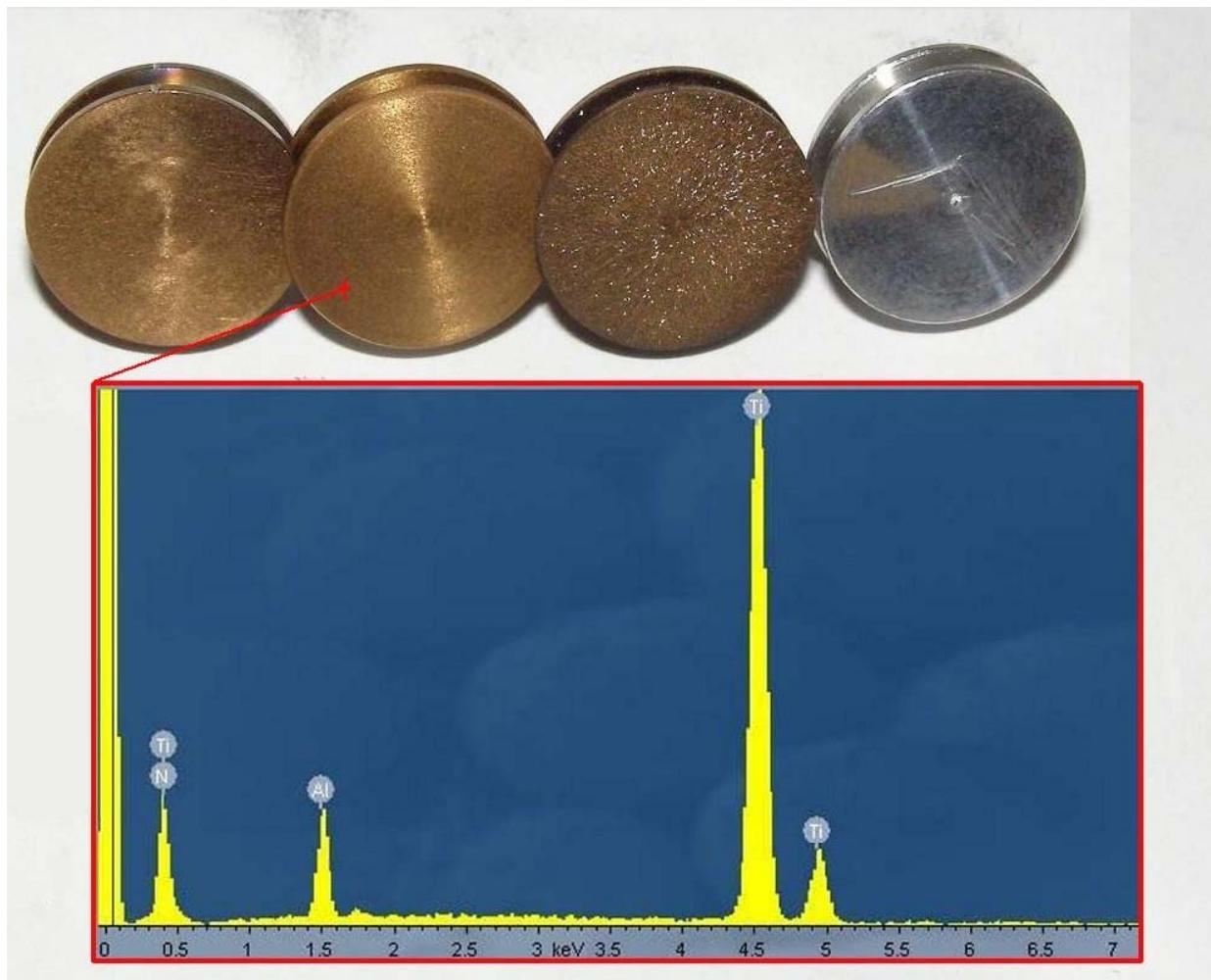
- testati in tensione anche con fascio con successo

- prove preliminari di tempi di crescita dell'instabilità con elettrodi on/off hanno dato risultati incoraggianti

- è stato preparato il setup per la misura a microonde della densità della nuvola di e-cloud



RF Magnetron Sputtering



SEM microanalysis of titanium nitride film on aluminum samples

Gas mixture
 $\text{N}_2(\text{mbar}) 2.7 \times 10^{-3}$
 $\text{Ar } (\text{mbar}) 8.5 \times 10^{-3}$

Time 300 sec

In order to develop the best parameters to obtain the Titanium nitride coating inside vacuum chamber a benchmark has been realized .

Optimal gas mixture has been found .

$P_{\text{RF}}=700 \text{ W (800 V)}$

Further details are available from
S. Bini: "[Synthesis of Nitride Titanium Film by RF Sputtering](#)", RF-11/001,
08/01/11

<http://www.lnf.infn.it/acceleratori/sparc/technotes.html#rf>

TITANIUM NITRIDE COATING FOR VACUUM CHAMBERS (DC)

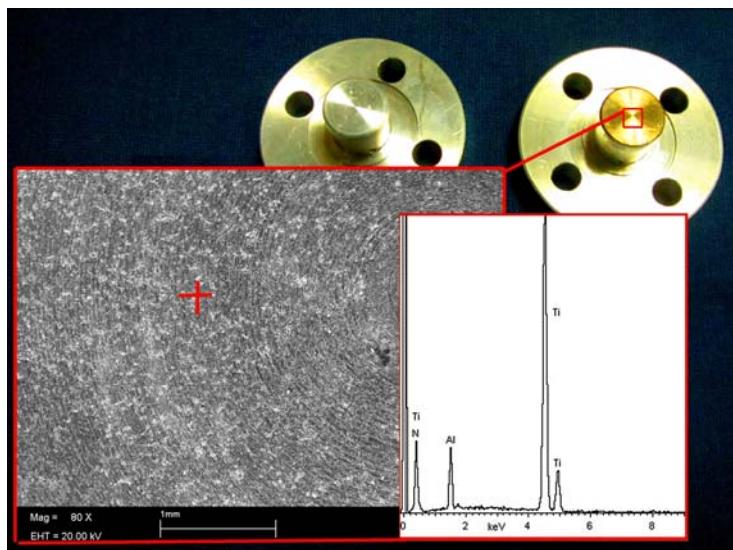


Experimental set-up



"Home made" magnetron sputtering

$V_{DC}=800\text{ V}$



SEM
microanalysis
of titanium
nitride film



Aluminum
sample
after
sputtering
deposition

30 minutes

Sputtering: next activities

- 1) Characterization of sputtered samples (EDS, Tor Vergata)
- 2) SEY measurements (LNF,...)
- 3) Deposition on vacuum chambers with different cross sections
- 4) Other deposition materials (NEG,)

Missioni estero

- **Assegnati 10 k€ ; spesi 5 k€:**
 - GDE “Baseline assessment Workshop BAW2”, SLAC 18-21 Gennaio 2011 – damping ring circumference choice (1 persona) **2.5 k€**
 - ALCPG11- ILC and GDE Workshop, Eugene, oregon, 19-23 Marzo 2011 – Damping ring lattice choice (1 persona) **2.5 k€**
- **Prossimi workshop 10.5 k€ :**
 - Damping Ring TDR Preparation Review, LNF 7-8 luglio 2011 **no spese**
 - IPAC11, International particle accelerator conference, San Sebastian, Spain, 4-9 September 2011 (2 persone) **3k€**
 - LCWS11, joint ILC-CLIC Workshop, 26-30 September 2011 Granada, Spain (3 persone) **4.5 k€**
 - Low Emittance Ring Workshop LER2011, 3-5 Ottobre 2011, Creta (3 persone) **3 k€**
- **Ulteriore richiesta 5.5 k€**

Richieste 2011 LNF

Capitolo	Descrizione	(K€) Settembre	(K€) ASSEGNOTI
ESTERO	Riunioni GDE e Collaborazione Damping Rings (ATF-KEK e CesrTA-Cornell)	25	10
CONSUMO	Materiale per deposizione di film sottili con basso “Secondary Emission Yield” (SEY), camere da vuoto, solenoidi	25	10
Impianti, attrezzature, macchinari	Strumentazione per procedimento di deposizione film sottili su camere da vuoto: sistemi di pompaggio e alimentatori per solenoidi	20	20
Totale		70	40

Totale FTE 2.2