

KEKB (Experiments) *KEKB and SuperKEKB*

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1. Measurement of electrons

1) Electron yield and distribution in the magnets

Design and installation of a monitor

How to detect the electrons at beam position ?

2) Fast measurement of electron yield

Detect a signal between bunch gap or train gap.

ex. measurement of decay time of e-cloud

Plan to use a channel plate to amplify the electron signal

3) *Difference between multipacting electron
and photoelectron*
KEKB *PEP II*

2. Reducing/removing electrons

1) More solenoids in drift region

2) Coating on chamber wall (R & D)

a) TiN

A measurement at KEK shows that the treatment of TiN coated surface by electron bombardment and sputtering results secondary electron yield less than 1.

Plan to measure photodesorption coefficient and photoelectron yield of TiN coated chamber at BNL.

b) NEG material

Installing NEG coated chamber in KEKB tunnel to see the effect of multipacting.

3) Ante-chamber (R & D)

Beam test with KEKB beam is underway.

4) Clearing/suppression electrons in quadrupole

a) Electrode

Design, making proto-type, hopefully installing in LER.

the proto-type

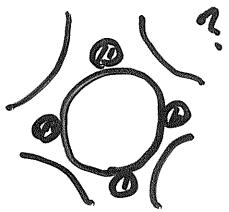
b) Solenoid

Simulation, test-winding, how to see the effect ?

c) Permanent magnet

Easier to install and cheaper than solenoid winding

Really effective or not ? \Rightarrow More simulation



3. E-cloud at 8 GeV

KEKB upgrade has a charge switch scenario.

(SuperKEKB)

Knowledge of e-cloud for 8 GeV beam is important to justify the charge switch.

How to know ? No idea at present.