

First Announcement

November 1, 2006

## International workshop on Electron-Cloud Effects "ELOUD07"

Daegu (Korea), April 09-12 or 13, 2007

<http://chep.knu.ac.kr/ecloud>

Hosted by CHEP, KNU (Korea)

Sponsored by KOSEF(Korea)

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Electron cloud effects (ECEs) such as vacuum pressure rise, emittance growth, single and multi-bunch instabilities, heat load on cold vacuum chambers, or betatron tune shift remain a highly active field of accelerator physics. Since the previous workshop ELOUD04, substantial progress has been made theoretically and experimentally in this field.

From the viewpoint of beam measurement and beam physics, the usefulness of frequency-domain measurements for observing coherent effects is being established in studies of the coupled bunch instability in positron rings, in observations of transverse oscillations in proton rings, and in investigations of the head-tail motion coupled to synchrotron oscillations. These measurements have a good accuracy and the results give direct insight into the physical mechanisms of the underlying phenomena.

Incoherent effects also become important. For example the degradation of the KEKB luminosity below the threshold of the coherent instability and the shortening of the lifetime in the trailing part of the bunch train at the SPS may be indications of such effects. Similar incoherent effects have been studied since a long time for the beam-beam interaction and the space-charge force. The contributions from these fields are welcome in this workshop.

Concerning modeling and simulation, efforts are now going towards parallel 3D modeling and self-consistent simulations including e-cloud build-up and beam instabilities. As one mitigation method a grooved surface proposed at ELOUD04 is about to be tested with beam. More results of the effect of coating by TiN and NEG on the secondary electron yield are collected to study the surface property of the materials. In addition the e-cloud in magnets (bend, wiggler, quadrupoles, and sextupoles) is drawing attention at PSR, HCX, KEKB and ILC damping ring and several experimental results begin to appear.

The E-CLOUD'07 workshop will take place at InterBurgo Hotel ( <http://hotel.inter-burgo.com/> ) in Daegu, Korea. Daegu is the third biggest city in Korea and it has convenient access from abroad. There is an international airport, and limo bus transportation from Incheon (Seoul) airport. Many international conferences for the ILC, SRI06 (Light source) and others have been held at the Daegu conference center. Center for High Energy Physics (CHEP) in Kyungpook National University (KNU) is the center of ILC studies in Korea.

The deadline for abstract submission is **January 31, 2007**. Proceedings will be published as KEK proceedings. We recommend submission of the workshop contributions to Physical Review Special Topics- Accelerators and Beams, to be published in a special edition.

The focus of E-CLOUD07 will cover all aspects of the ECE. Moreover the workshop will also include ion effects and the incoherent effect of the beam-beam and space charge interaction since they are closely related to the ECE in view of the two-stream interaction. Some of the topics to be covered are:

- Review of observations at existing accelerators.
- Concerns for future accelerators.
- Progress in simulation codes (E-cloud build up, single and multi-bunch instabilities etc.)
  - Modeling in simulation codes
  - Code comparison between simulation codes
  - Bench marking of simulation against beam observations
- Progress in analytical models.
- Observation methods and e-cloud diagnostics.
- Surface properties
- Generation of e-clouds (beam loss, synchrotron radiation, beam induced multipacting etc.)
- Cures of the ECE (coatings, beam scrubbing, clearing electrodes, grooved surface, weak solenoid, active damping etc.)
- Ion effects
- Incoherent effect such as emittance growth.

**Some of the goals that will guide the workshop are:**

- Summarize present understandings and get future research directions.
- Identify the important open questions.
- Strengthen and expand international collaborations.

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