OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

First Announcement (rev. October 20, 2003)

The 31st ICFA Advanced Beam Dynamics Workshop on Electron-Cloud Effects "ECLOUD04"

Napa (California), April 19-22, 2004

Sponsored by LBNL, CERN, ORNL and SNS

http://www.cern.ch/icfa-ecloud04

The existence of electron cloud effects (ECEs), which include vacuum pressure rise, emittance growth, instabilities, heat load on cryogenic walls and interference with certain beam diagnostics, have been firmly established at several storage rings, including the PF, BEPC, KEK-B, PEP-II, SPS, PSR, APS and RHIC, and is a primary concern for future machines that use intense beams such as linear collider damping rings, B factory upgrades, heavy-ion fusion drivers, spallation neutron sources and the LHC.

The workshop will take place in the Napa Embassy Suites (http://www.embassynapa.com/), which will also be the official conference hotel. The deadline for abstract submission is **January 30, 2004**. The deadline for hotel reservations is **March 18, 2004**. Proceedings will be published, and authors will be encouraged to submit their contributions to a special edition of PRST-AB (details on abstract submission, registration, hotel reservations and transportation options to follow).

This ICFA workshop will review experimental methods and results obtained within the past few years on the ECE, along with progress on its understanding obtained from simulations and analytic theory, and the effectiveness of mitigation mechanisms, including active damping.

As in previous workshops dealing with the ECE (KEK, July 1997; Santa Fe, February 2000; KEK, September 2001; CERN, April 2002), the focus of ECLOUD04 will be broad, covering all aspects of the phenomenon. Some of the topics to be covered are:

- Review of observations at the SPS, PSR, and the B factories.
- Experimental methods and e-cloud diagnostics.
- Lessons learned from simulation comparisons with experiments (effect of secondary emission yield, understanding of single-bunch instabilities, etc)

- Predictions for intense proton and heavy-ion machines.
- Progress in simulation codes and the physical model involved.
- Progress in analytical models.
- Various methods of mitigating ECE (e.g. Landau damping, e-suppression coatings, beam scrubbing, clearing fields, beam manipulation, and active damping)

Some of the goals that will guide the workshop are:

- Summarize our understanding, identify essential issues, and scope out future research avenues.
- Assess state of theory and simulations.
- Identify and assess mitigation mechanisms.
- Compile list of simulation codes and their features.
- Assess experimental methods and diagnostics.
- Strengthen and expand international collaborations.

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