

The 40th ICFA
Advanced Beam Dynamics Workshop
on High Luminosity e^+e^- Factories



14 – 16 April, 2008

Budker Institute of Nuclear Physics,
Novosibirsk, Russia

Introduction

The ICFA Workshop on Beam Dynamics at High Luminosity e+e- Factories taken place in Novosibirsk on April 14-16, 2008. The aim of this Workshop, supported by ICFA and Budker Institute of Nuclear Physics, was to exchange the experience and recent achievements at electron-positron factories. The workshop program cover the current trends for the available and future circular accelerators.

Agenda

- Recent beam dynamics news from the main e+e- facilities and installations (KEK/KEKB, SLAC/PEP-II, DAFNE, BEPCII, CESR, and VEPP2000)
- The most intriguing issues of beam dynamics at e+e- colliders including the beam-beam effects, instabilities, electron clouds and feedbacks, high beam loading RF systems, background and collimation, dynamic aperture and beam polarization
- Tor-Vergata SuberB project and other crab-waist collision scheme proposals

Place

The ICFA Workshop on e+e- factories was held at Budker Institute of Nuclear Physics, Lavrentiev Ave.11, Novosibirsk 630090, Russia.

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Workshop summary

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The 40th Advanced Beam Dynamics Workshop was held at Budker Institute of Nuclear Physics, Novosibirsk, Russia on April 14-16, 2008. The Workshop was dedicated to the high luminosity electron-positron colliders.

All the operating electron-positron colliders were presented at the Workshop:

- BEPC II (IHER, Beijing, China)
- CESR (Cornell University, Ithaca, USA)
- DAΦNE (LNF INFN, Frascati, Italy)
- KEKB (KEK, Tsukuba, Japan)
- PEP-II (SLAC, Stanford, USA)
- VEPP 2000 (BINP, Novosibirsk, Russia)
- VEPP 4M (BINP, Novosibirsk, Russia)

Besides the working facilities, two new projects, Super B Factory in Europe and Tau-Charm factory in Novosibirsk, were discussed together with the planned upgrade of the KEK B factory in Japan.

The total 30 talks at the Workshop were divided into three sections: status reports from the existing installations; reports describing the issues of beam dynamics on the high luminosity electron-positron colliders and experimental results; and talks on two future projects exploiting the Crab Waist collision approach (Super B and Tau-Charm).

It is worth mentioning that at the Workshop, the first results were presented illustrating the three existing directions in the luminosity increase including the round colliding beam concept applied on VEPP 2000 (Novosibirsk), the Crab Crossing approach intensively employed at KEKB (Tsukuba) and the large Piwinsky angle (Crab Waist) collision scheme tested successfully on the DAΦNE storage ring (Frascati).

Besides, the workshop participants met enthusiastically the results of commissioning on VEPP 2000, BEPC II and DAΦNE (after the Crab Waist upgrade). Interesting experimental results describing the beam-beam study, machine resonance suppression, etc, from one of the e^+e^- collider patriarch, CESR (Ithaca, USA), were presented.