

WORKSHOP ON BEAM DYNAMICS ISSUES OF HIGH-LUMINOSITY ASYMMETRIC COLLIDER RINGS

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■ Following are the general conclusions of the Workshop. The complete summary will be published in the Proceedings [1].

■ General conclusions

1. An asymmetric B factory is here defined to be an e^+e^- storage ring collider capable of 10^{33} to 10^{34} $\text{cm}^{-2}\text{s}^{-1}$ luminosity in the center of mass energy range 10–11 GeV with beam energy ratios of up to 4 to 1. **Based on studies of designs for such machines at eight laboratories around the world, there is no known reason to expect that such a facility cannot be built.** No completely satisfactory conceptual design for such a facility exists at this time, however. Technical issues requiring further study and resolution are discussed in this report.

2. There is no question that e^+e^- collisions with luminosities in excess of 10^{32} $\text{cm}^{-2}\text{s}^{-1}$ can be achieved in the 10–11 GeV center of mass energy regime. The success of a B factory hangs upon achieving 30 to 100 times this luminosity. Due to uncertainties in scaling of detector backgrounds, the beam-beam tune shift limits, or multibunch instabilities, and because the requisite extrapolation in luminosity is large, the **facility designs need to be sufficiently conservative that they can be easily adjusted to accommodate the possible need for larger currents or modified collision geometry, beam energy ratio and emittances.**

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[1] Workshop on Beam Dynamics Issues of High-Luminosity Asymmetric Collider Rings, AIP Conference Proceedings, 19 March 1990, to be published.