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Design of the Advanced Accelerator Test Beam Line at LBL

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Authors

Leemans, W.

Behrsing, G.

Kim, K.-J.

et al.

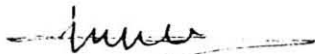
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Design of the Advanced Accelerator Test Beam Line at LBL,* W. LEEMANS, G. BEHRING, K.- J. KIM, J. KRUPNICK, C. MATUK, F. SELPH, L. STOUT, and S. CHATTOPADHYAY, Lawrence Berkeley Laboratory --We report on the progress of the design and construction of a beam line, expected to be built by August 1993, which will transport the 50 MeV electron beam from the ALS injector into an experimental area. A variety of experiments are planned involving the interaction of such a relativistic electron beam with plasmas (plasma focusing), laser beams (generation of femtosecond X-ray pulses) and electromagnetic cavities (Crab cavities etc...). The beam line is designed using the measured emittance and Twiss parameters of the ALS linac. It accommodates the different requirements of the various experiments on the electron beam properties (charge, energy, pulse length) and on the handling of the beam before and after the interaction point. Special attention has also been given to incorporate diagnostics for measuring the beam properties (such as the electron energy, bunch length and charge) needed in the interpretation of the experiments. The beam line lay-out including the diagnostics and the lay-out for the different experiments will be shown.

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Wim Leemans
MS 71H
1 Cyclotron Road
Berkeley, CA 94720

Phone: (510)486-7788
Fax:(510)486-7981
E-mail:Leemans@LBL.gov

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