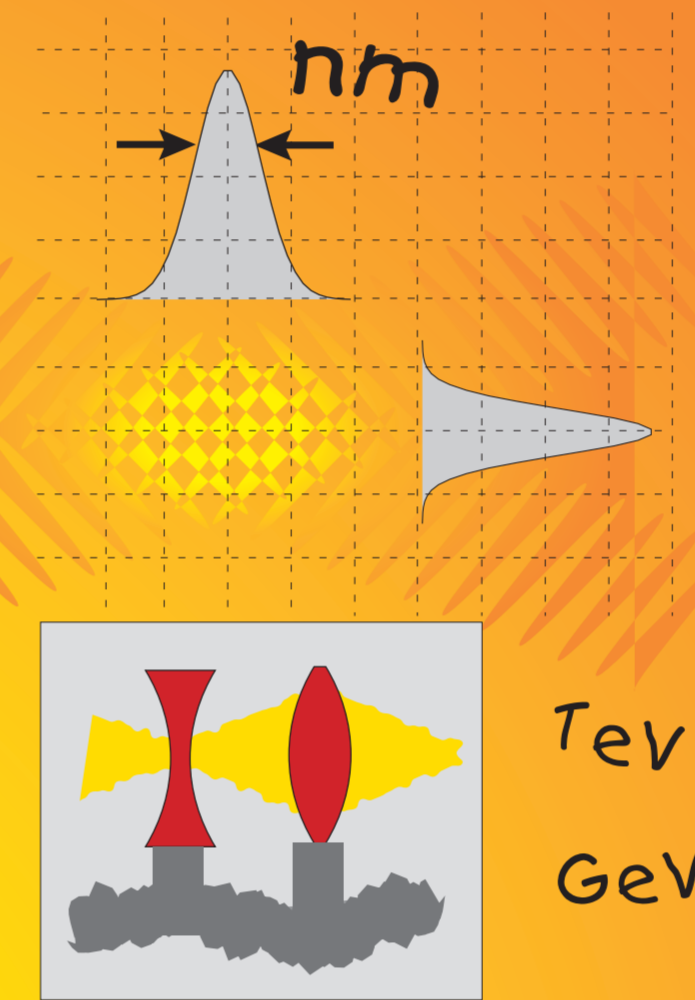


NANOBEAM 2002

26th Advanced ICFA Beam Dynamics Workshop on Nanometre Size Colliding Beams

September 2-6, 2002, Lausanne, Switzerland



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International Committee for Future Accelerators
Sponsored by the Particle Physics Community



Accelerators have produced high-energy particle beams with sizes as small as 70 nm and with 500 nm beams in stable collision. These "nanobeams" impose stringent tolerances on the magnetic focusing and the stability of the accelerator. Future linear colliders foresee colliding high-energy particle beams with vertical spot sizes down to the 1 nm level. For the production and control of these beams many new challenges must be met. **The ICFA Workshop on Nanometre-Size Beams will look at:**

Technical issues in producing and controlling particle beams with nm-size, including the Final Focus, collimation, beam instrumentation, and beam-based feedback systems.

Disturbing effects from ground motion, magnet vibration, optics errors, etc.

Achievable limits with present accelerator and stabilization technology.

Possible applications of nanobeams in and beyond particle physics.

The workshop is addressed to:

The linear collider accelerator community, that relies on nm-size beams to push the frontier of particle physics.

The synchrotron radiation accelerator community, which has extensive experience with accelerator stabilization and the control of small beams.

The general accelerator physics community with interest in optics design, higher-order chromatic corrections, and advanced beam collimation.

Scientists working with sub-nm stabilization, like for gravitational wave detectors, chip production, and Transmission Electron Microscopy (using low energy nanobeams).

Scientists with interests to use high-energy nanobeams for new applications.

Industrial companies specializing in the development of advanced active and passive stabilization equipment.

The workshop should inspire a lively exchange of advanced ideas and concepts between the scientists involved in the different areas of research. **The following goals should guide the workshop:**

Describe a path towards proving feasibility of colliding and non-colliding nanometre-size beams, document existing solutions, and identify open questions.

Develop a coherent program for future research and development.

Strengthen and expand international and inter-disciplinary collaborations.

Mini-workshop on measurement of beam energy in linear colliders:

A parallel session will be devoted to the precise measurement of the beam energy in linear colliders, based on the experience in existing and past accelerators. Details will be announced on the Nanobeam02 web site.

<http://www.cern.ch/nanobeam>