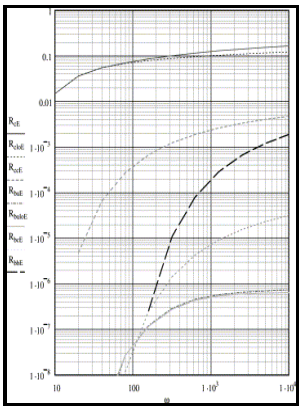
Colliders and collider physics at the highest energies - muon colliders at 10 TeV to 100 TeV : HEMC 99 Workshop, Montauk, New York, 27 September-1 October 1999

AIP - The potential for neutrino physics at muon colliders and dedicated high current muon storage rings



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[physics/0005008] Parameter Sets for 10 TeV and 100 TeV Muon Colliders, and their Study at the HEMC'99 Workshop

Having detailed the scenario, it should again be emphasized that the overall scenario, together with its specific choices and assumptions, was intended to do no more than provide the seed for more credible design studies from the accelerator physicists attending this workshop. The layout is schematic and is certainly not drawn to scale.

[physics/0005008] Parameter Sets for 10 TeV and 100 TeV Muon Colliders, and their Study at the HEMC'99 Workshop

A magnet layout for the final focus from Johnstone closely reproduced the predicted β m a x in table. If the magnet spacings and magnetic field parameters are appropriate then the non-uniform bending fields automatically provide alternating gradient focusing in both transverse planes.

Colliders and collider physics at the highest energies (2000 edition)

These are really no more than guesses since, for example, the magnet apertures and ratios of peak-to-average magnetic fields required for this scenario are unknown. The assessment of the parameter sets during the workshop is then reviewed and the implications for the feasibility of many-TeV muon colliders are evaluated.

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Scott Berg, Acceleration for a High Energy Muon Collider, these proceedings.

STUDIES FOR MUON COLLIDERS AT CENTER

For comparison, table also includes the parameter ranges for the lower energy muon colliders that have been studied by the Muon Collider Collaboration MCC. Aside from the technical considerations, the acceleration is expected to dominate the cost of the colliders so its cost optimization will be very important and this was the main design criterion for the straw-man scenarios presented in table. Finally, a preview is given of plans for iterating on the parameter sets and, more generally, for future feasibility studies on many-TeV muon colliders.

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Also disappointing are the obstacles to beam compensation at collision as was assumed in parameter set C , which call into question the possibility of being able to do this — see reference for discussion on this topic.

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