Status of Muon Collider Research and Development and Future Plans

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The status of the research on muon colliders is discussed and plans are outlined for future theoretical and experimental studies. Besides continued work on the parameters of a 3-4 and 0.5 TeV center of mass (CoM) collider, many studies are now concentrating on a machine near 100 GeV

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(CoM) that could be a factory for the s-channel production of Higgs particles. We discuss the research on the various components in such muon colliders, starting from the proton accelerator needed to generate pions from a heavy-Z target and proceeding through the phase rotation and decay ($\pi \to \mu\,\nu_\mu$) channel, muon cooling, acceleration, storage in a collider ring and the collider detector. We also present theoretical and experimental R & D plans for the next several years that should lead to a better understanding of the design and feasibility issues for all of the components. This report is an update of the progress on the R & D since the Feasibility Study of Muon Colliders presented at the Workshop Snowmass'96 [R. B. Palmer, A. Sessler and A. Tollestrup, *Proceed ings of the 1996 DPF/DPB Summer Study on High-Energy Physics* (Stanford Linear A ccelerator Center, Menlo Park, CA, 1997)].

29.27.-a,29.27.Bd,29.20.-c,29.20.Dh,29.25.-a,41.85.-p,41.75.Lx,41.75.-i,13.35.Bv,13.10.+9,14.60.Ef