

Polarized Muon Beams in a Muon Collider,
D. CLINE, B. NORUM, R. ROSSMANITH, UCLA,
Univ. of Virginia, DESY - Recently several
investigations were performed on how to build a high
energy (up to 2 TeV). high luminosity muon collider.
In this paper discussions on obtaining polarized muon
beams are summarized. Muons are born polarized.
The polarization has to be conserved during ionization
cooling and acceleration. It is shown that it is possible
to maintain polarization due to the unique physical
properties of muons compared to electrons (higher
mass but comparable anomalous magnetic moment)
when the average energy during cooling is not too high.
This relatively high stability of polarization has the
disadvantage that conventional spin handling systems
(spin rotators etc.) would become rather expensive.
The spin handling systems have to be integrated into
the ring. Scenarios and possible solutions are
presented. In summary: the muon collider could be an
excellent tool to study polarized high energy lepton
interactions.