

# PARTICLE PHYSICS OPPORTUNITIES :\*

- The physics capability of  $\mu^+\mu^-$  and  $e^+e^-$  colliders with the same energy and luminosity are **SIMILAR**  
 $\mu^+\mu^-$  collider is a complementary machine to  $e^+e^-$  and hadron(HLC) colliders
- s-channel production of Higgs boson  
SM ( $h_{SM}$ ) and MSSM ( $h^0, H^0, A^0, H^\pm$ )
- Beam-beam interaction is reduced (2 bunches of each sign at 15 Hz and  $10^3$  turns)
- Finer energy resolution (reduced synchrotron radiation)

\*

---

  $\mu^+\mu^-$  COLLIDER

- Both beams may be polarized albeit with loss of luminosity
- Possibility of  $\mu p$  collision; study rare  $\mu$  decay, also other beams  $\pi$ , kaons, neutrinos
- If SUSY does not exist, a 4 TeV machine may be needed to study the mechanism for electroweak symmetry breaking (W W strong boson scattering)

†

†



$\mu^+ \mu^-$  COLLIDER