

Linac-Ring Features

tunnel separate from LHC

low e- emittance

- no hourglass, large angle acceptance

single pass collision

- no tune shift constraint

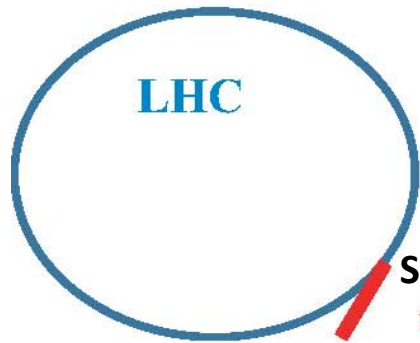
90% e- polarization

energy-recovery options

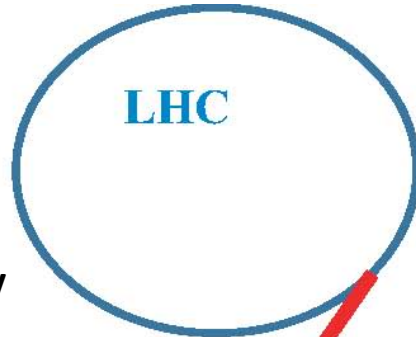
various candidate layouts

staging possibility

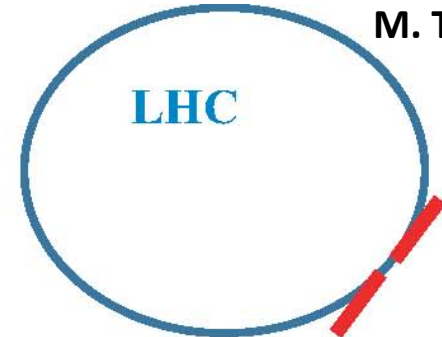
linac-ring scenarios



S. Sultansoy
sc or nc
pulsed linac

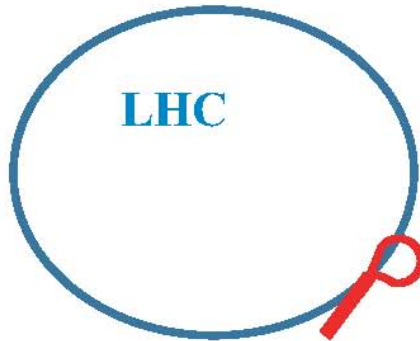


sc cw linac
S. Chattopadhyay

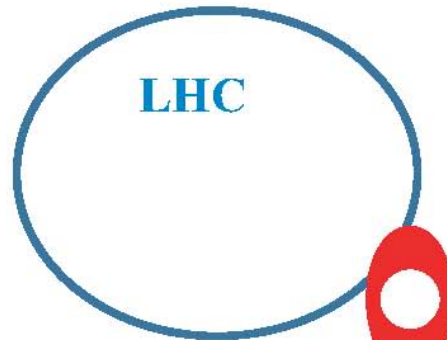


2 pulsed sc linacs
with energy recovery

M. Tigner
F. Z.

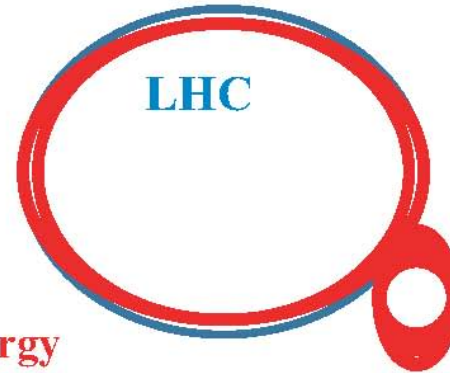


J. Sekutowicz
1 pulsed sc linac
with energy recovery
via turnaround loop



S. Chattopadhyay

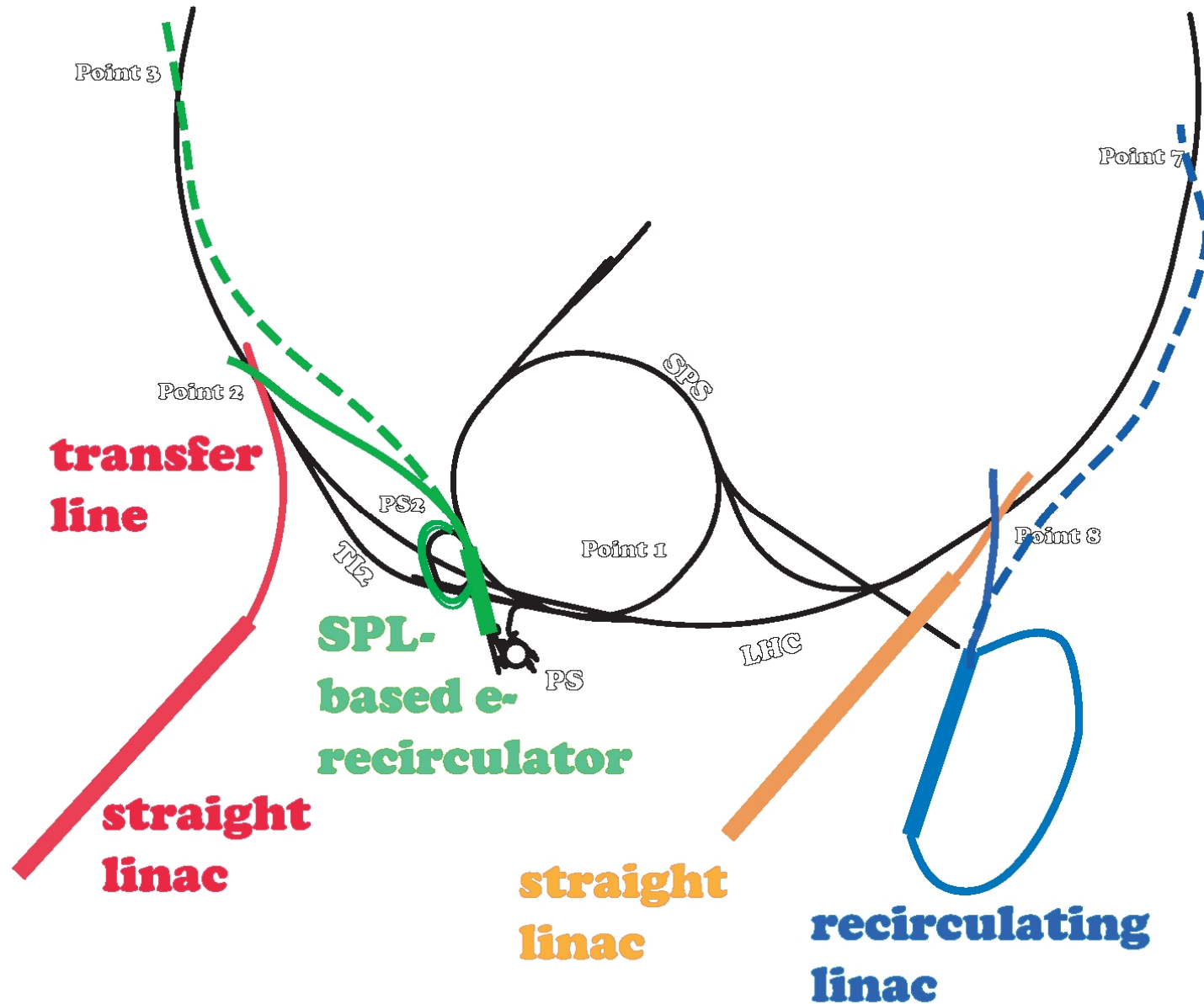
energy
recovery
s.c. linac



higher -
energy
energy
recovery
s.c. linac

V. Litvinenko

example layouts



Linac-Ring Potential

100 MW wall plug power

20 GeV 98% energy recovery	60 GeV w/o energy recovery	60 GeV 98% energy recovery	140 GeV 98% energy recovery
5×10^{34} $\text{cm}^{-2}\text{s}^{-1}$	5×10^{32} $\text{cm}^{-2}\text{s}^{-1}$	1×10^{34} $\text{cm}^{-2}\text{s}^{-1}$	4×10^{33} $\text{cm}^{-2}\text{s}^{-1}$

proton parameters from LHC “phase-2” upgrade
 $N_b = 5 \times 10^{11}$, 50 ns spacing, $\gamma\epsilon = 3.75 \mu\text{m}$, $\beta^* = 0.1 \text{ m}$