

Muon-colliders by particle chirping

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Abstracts

Chirping is a frequently used expression in laser physics indicating separately amplifying different frequency components of the laser pulse. For muon collider we propose chirping in similar sense for particle beams creating distinct classes of particles and manipulating them specifically in order to provide possibility for creation aggregated united systems with peculiar outstanding qualities.

The main ingredients of the proposed system are the following:

- a) Parent energy gain:
50 GeV proton beam \times 5 TeV LHC beam =100 times more muon/pulse
- b) Instead of one shot collider \times 100 turn synchrotron=100 times more luminosity
- c) jet-chirping for $\bar{\nu}_\mu$ production
- d) muon-chirping
- e) laser generated micron wide currents in streamer plasma lenses for focusing
- f) rapid cycling superconducting magnet switches for synchrotrons

The proposed schemes: HIGGS125 factory, Colliders (0.5+0.5 and 10+10 TeV) in the present tunnels, Colliders in FCC (50+50 TeV, p-antip) tunnel, PetaelectronVolt muon beams for ICAN linear collider with calorimeter detectors, the new Rutherford-experiment.

Primary author: Prof. VESZTERGOMBI, Gyoegy (Wigner RCP)

Presenter: Prof. VESZTERGOMBI, Gyoegy (Wigner RCP)

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