

New Concepts for a Compact 5 TeV Collider,
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accelerator concepts for high energy physics are premised
on a workable concept for high-luminosity collisions.
Despite this, no viable machine sketch exists for such
machines, that does not imply one of the following
disadvantages: GW site power, sub-nm alignment
tolerances, gradient less than 1 GeV/m, pulsed-heating
exceeding the fatigue limit for conventional materials,
chromatic correction section longer than 10 km. We sketch
a collider that passes all these tests, on paper. It relies on
several concepts that flout conventional collider scaling
laws: active matrix acceleration, harmonic acceleration and
other rf manipulations, charge combination, sextupole-free
final focus, cluster collisions, and neutral beam collisions.
We present a consistent parameter set for a 5 TeV collider,
and discuss the critical research problems.