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## Colliders and luminosity

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Modern particle physics relies on high energy particle accelerators to provide collisions of various types of elementary particles in order to deduce fundamental laws of physics or properties of individual particles. The only way to generate particle collisions at extremely high energies is to collide particles of counter-rotating beams...called "particle-colliders".

This write-up gives a short briefing on the physics motivation of various particle colliders ( $e^+e^-$  colliders,  $pp$  colliders, ...), a summary of the historical evolution and a mathematical treatment to describe collider performance.

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