

Linear accelerator

A linear particle accelerator (often shortened to linac) is a type of particle accelerator that greatly increases the kinetic energy of charged subatomic particles or ions by subjecting the charged particles to a series of oscillating electric potentials along a linear beamline; this method of particle acceleration was invented by Leó Szilárd. It was patented in 1928 by Rolf Widerøe, who also built the first operational device and was influenced by a publication of Gustav Ising.

Linacs have many applications: they generate X-rays and high energy electrons for medicinal purposes in radiation therapy, serve as particle injectors for higher-energy accelerators, and are used directly to achieve the highest kinetic energy for light particles (electrons and positrons) for particle physics.

The design of a linac depends on the type of particle that is being accelerated: electrons, protons or ions. Linac range in size from a cathode ray tube (which is a type of linac) to the 3.2-kilometre-long (2.0 mi) linac at the SLAC National Accelerator Laboratory in Menlo Park, California.

see [Linear accelerator radiosurgery](#)

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Last update: **2025/04/29 20:29**

