

Five cool things you can do with an ‘atom smasher’

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by Bruce Carlsten

Early in the 20th century, scientists began to unravel the atom’s inner workings, discovering tiny particles like protons, neutrons and electrons. To better understand how these particles work, pioneer scientists developed and built “atom smashers,” huge machines that accelerate particles to near the speed of light and crash them into each other at extremely high energies.

Today, accelerators are common in various places, from hospitals, where they create particles for medical imaging and treating diseases, to world-class research laboratories, where they continue to explore how the universe works at the smallest scale.

Los Alamos National Laboratory has several accelerators peppered throughout its 43 square miles. By far its largest is the accelerator at the Los Alamos Neutron Science Center (LANSCE). The most powerful linear accelerator in the world when it opened in 1972, LANSCE speeds protons, one of the basic building blocks of atoms, to 84 percent the speed of light and energies as high as 800 million electron volts.

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