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### **Accelerators for America's Future**

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Particle accelerator, a powerful tool to energize beams of charged particles to a desired speed and energy, has been the working horse for investigating the fundamental structure of matter and fundamental laws of nature. Most known examples are the 2-mile long Stanford Linear Accelerator at SLAC, the high energy proton and anti-proton collider Tevatron at FermiLab, and Large Hadron Collider that is currently under operation at CERN. During the less than a century development of accelerator science and technology that led to a dazzling list of discoveries, particle accelerators have also found various applications beyond particle and nuclear physics research, and become an indispensable part of the economy. Today, one can find a particle accelerator at almost every corner of our lives, ranging from the x-ray machine at the airport security to radiation diagnostic and therapy in hospitals. This presentation will give a brief introduction of the applications of this powerful tool in fundamental research as well as in industry. Challenges in accelerator science and technology will also be briefly presented