

## **challenges of large scale superconducting accelerators**

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### **ABSTRACT**

The technology of superconducting RF accelerators has reached a mature state. After pioneering developments at Cornell several major SRF (Superconducting Radio Frequency) systems operate/operated reliable at electron storage rings (Cornell, CERN, KEK, DESY), heavy ion linacs (Legnaro, Argonne) as well as electron linacs for nuclear physics or FEL application (Jlab, TTF, DALINAC). The first large scale superconducting proton accelerator is under construction at SNS. Furthermore a variety of synchrotron light sources using SRF technology are under construction or planning.

The largest SRF installation is proposed for a linear collider (TESLA). A new X-FEL user facility is under preparation at DESY. In this talk the SRF accelerator technology is reviewed. Cryogenic and accelerator challenges are discussed in detail for TESLA and X-FEL.