

Various applications of SRF linear accelerators in KEK

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As an introduction, we will talk about the merit of the superconducting cavity and we about our applied research based on Compact ERL (cERL) in KEK, which uses the Nb superconducting cavity and can make energy recovery operation. The cERL's characteristic using the high-current beam has a variety of applications; industrial applications using high-intensity terahertz light and mid-infrared FEL (free-electron laser). In addition, high current CW-beam irradiation was conducted for basic research on domestic production of nuclear medicine, strengthening of asphalt, and the highly efficient production of nanocellulose from wood in cERL. After talking about these applications of cERL, we will discuss "Future plan for applied research using superconducting accelerators". One is the EUV-FEL light source development for EUV-lithography and the other is the development of compact superconducting RF accelerator based on Nb₃Sn for high-power beam irradiation.

Footnotes

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