

Overview of accelerating structure research activities at IHEP

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In electron linear accelerators, the improvement of the acceleration gradient of the acceleration structure has been a continuous research topic for scientists, which can reduce the construction cost of the entire accelerator by increasing the accelerating gradient. For the CEPC and HEPS projects at IHEP, S-band 3 meters long and C-band 1.8 meters long accelerating structure has been developed. The operating frequencies are 2860 MHz, 2998.8 MHz and 5720MHz respectively. CEPC linac is 30 GeV with S & C-band structures in the TDR phase. The high-power test gradient of S-band accelerating structure reach the 33MV/m. The C-band structures also designed and waiting for high power test. HEPS is 500 MeV linac in-jector and already conditioning for one year. The maximum gradient achieved with the beam during commissioning was approximately 26 MV/m with a beam current of 7 nC. During actual operation, it has been functioning at around 20 MV/m. The electron beam has remained stable up to the present time.

Footnotes

Funding Agency

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