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## X-band high gradient accelerating structure for VIGAS project at Tsinghua university

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A light source project named Very Compact Inverse Compton Gamma-ray Source (VIGAS) is under development at Tsinghua University. VIGAS aims to generate monochromatic high-energy gamma rays by colliding a 350 MeV electron beam with a 400-nm laser. To produce a high-energy electron beam in a compact accelerator with a length shorter than 12 meters, the system consists of an S-band high-brightness injector and six X-band high-gradient accelerating structures. The X-band structure's frequency is 11.424 GHz, and it adopts a constant gradient traveling wave approach; thus, the iris from the first cell to the end cell is tapered. The total cell number is 72, so we named it XT72. In the last two years, we conducted the design, fabrication, and tuning of the first prototype of XT72. Recently, we finished the high-power test, and the result demonstrates that it has the ability to work at an 80 MV/m gradient. In this paper, we present the latest update on this structure.

### Footnotes

### Funding Agency

### Paper preparation format

### Region represented

Asia

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