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# A TM020-mode cavity with choke geometry for Super Tau-Charm Facility

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A compact TM020-mode radiofrequency (RF) cavity has been proposed and studied by KEK and RIKEN for storage ring of Nanoterasu facility. However, the leakage power of the accelerating mode into the coaxial slots is an issue to limit its performance. This paper presents an improved TM020-mode cavity in order to solve this issue. To protect the operating mode and reduce its leak-age, a choke geometry was designed. By employing choke geometry, the leakage can be significantly re-duced. By optimizing the inner shape, all harmful parasitic modes except from the TM020-mode can be heavily suppressed. This improved TM020-mode RF cavity meets the requirements of the Super Tau Charm Facility (STCF) collider rings.

## Footnotes

## Paper preparation format

Word

## Region represented

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