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The SWELL Cavities program

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An innovative superconducting cavity topology has been recently proposed at CERN and at Lancaster University. It integrates longitudinal slots crossing perpendicularly the RF surface. The RF current lines run along the slots, inducing no perturbation of the accelerating mode. Thanks to this approach, the cavity can be built using halves or quadrants, which is well appropriate to precise manufacturing techniques. This configuration allows direct access to the RF surface, thus facilitating the surface preparation and thin film deposition process in the case of cavities based on Nb/Cu technology. The contact faces between the cavity parts are moved to the slots' ends where the electromagnetic fields are extremely low, thus relaxing the constraints on the quality of the assembly joints. These presentations cover the latest development of a 600 MHz slotted elliptical cavity called SWELL, which has been proposed as an alternative option for the FCC-ee RF system as well as a simplified SWELL version of a single cell 1.3 GHz elliptical cavity and a new 6 GHz split resonator made of two halves for superconducting thin film characterization.

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