**Superconducting RF cavity development for the collider and booster**

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This talk will report the latest progress of the CEPC 650 MHz and 1.3 GHz superconducting RF cavity and cryomodule R&D.

Extremely high quality factor (> 1E11 up to 20 MV/m at 2 K) is abstained on several mid-T treated 650 MHz single cell cavities, and the best cavity reaches the world record of 6.4E10 at 31 MV/m at 2 K. The lowest BCS resistance and residual resistance is only 1 nano-ohm or even less, significantly decreased relative to EP cavities. The LLRF system of the CEPC 650 MHz test cryomodule with two 2-cell cavities is under commissioning and high power test of the module is foreseen in July.

CEPC booster 1.3 GHz SRF R&D and industrialization is in synergy with domestic CW FEL projects. IHEP is providing high Q 9-cell cavities for SHINE and a prototype high Q cryomodule for DALS based on the mid-T (medium temperature furnace baked) technology, which have higher gradient and Q than Nitrogen doped cavities with less EP process. Horizontal test of the four mid-T 9-cell cavities (later delivered to SHINE) shows better performance than LCLS-II cavities. Vertical test of eight new 9-cell cavities for the DALS module shows better performance than the previous batch and the LCLS-II-HE cavities. Most of the components of the 1.3 GHz 8x9-cell cryomodule will be ready for assembly at PAPS in August, including the vacuum vessel, upper cold mass, eight high Q mid-T cavities with helium vessel and magnetic shield, input couplers, tuners, superconducting magnet, BPM etc., as well as the various tooling and cryogenic, HLRF and LLRF systems.