

# Copper electropolishing studies for the FCC-ee SC-RF cavities

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Previous experiments have demonstrated a better performance obtained for thin film Nb/Cu RF cavities on electropolished copper substrates compared to chemically polished ones. In the context of the Future Circular Collider (FCC) study, CERN is designing a new copper electropolishing facility capable of processing elliptical cavities from 1.3 GHz to 400 MHz (single cell); this facility is to be commissioned in early 2018. The aim is to provide state of the art surface finishing on copper bulk radio frequency structures, namely on the 400 MHz single cell FCC type cavities and thus contributing in achieving the ultimate performance on the Nb/Cu technology. In this contribution, it'll be shown the planning, cost evaluation, design status as well as ongoing modelling and simulation work to define the optimum working tools (cathode geometry) and parameters (potential, current and polishing bath flow). The modelling and simulation work is being presently benchmarked with 1.3 GHz cavities.

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