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## Progress in the design and testing of thin film on longitudinal split RF cavity

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Copper cavities can be deposited with a thin film of superconducting material in order to test the RF performance of the thin film. Traditional thin film copper cavities are produced from 2 half cells, which are then welded across the equator, however these cavities can suffer from poor coating quality and field enhancement on the weld.

An alternative approach instead involves producing cavity halves that are split longitudinally, parallel to the surface current. This means that a gap can be introduced, that the fields are unable to couple into. As a result, the weld can occur further from the fields in the cavity which may improve cavity performance. Additionally, longitudinally split cavities offer advantages such as enabling different deposition processes and facilitating easier quality control due to their open-face design.

This paper discusses the performance of a range of thin film coatings on a 6 GHz longitudinally split cavity as well as improvements to the future design of the cavity which should result in reduced uncertainties when testing thin films on the cavity.

**Presenter:** LEICESTER, Nathan

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