## International Workshop on Breakdown Science and High Gradient Technology (HG2018)



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## High-gradient structures for medical applications

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A number of initiatives to use linacs for proton therapy are underway and high-gradient technology may play an important role in making such linacs competitive with existing ring-based facilities. Collaborations between CLIC and both the Cockcroft Institute and the TERA foundation have designed high-gradient RF cavities for applications in hadron therapy. CLIC have established a field limiting quantity used in RF design of cavities, which is used alongside optimised manufacturing procedures to achieve the optimum high-gradient operation. The techniques have been applied to both the 'ProBE' 3 GHz side-coupled cavity and the 'KT' 3 GHz backwards travelling wave structure (bTWS) both presented in this talk. The bTWS has been high power tested in the 'S-Box' high-gradient test facility in CTF2 since 2016 and preliminary results are presented alongside future plans to test the ProBE cavity.

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