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Modified Active Disturbance Rejection Control for microphonics reduction in SRF cavities

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In low beam loading applications, operating SRF cavities with high loaded quality factors is currently one of the main efforts in order to reduce the electric power needed for particle acceleration. This reduction is a key factor for current and future facilities as it 1) decreases the initial invest (tube based amplifiers can be substituted by solid state amplifiers) and 2) reduces the plug power, lowering thus the operation costs and making the accelerators more sustainable. In this sense, controlling the microphonics detuning of the SRF cavities is fundamental to allow high QL operation. Here we present the results of a modified Active Disturbance Rejection Control used to drive the piezoactuators feedback in a TESLA cavity at HZB's HoBiCaT teststand.

Summary

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