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## Brazilian Contribution to Instrumentation in the ALPHA Experiment

*Wednesday 27 April 2022 14:00 (20 minutes)*

The ALPHA Collaboration currently operates 2 different experimental apparatus for antihydrogen ( $\bar{\text{H}}$ ) studies: ALPHA-2 is dedicated to precision spectroscopic measurements (both in the optical and in the microwave regions of the spectrum) while ALPHA-g was designed for gravitational experiments. In this talk, I will review some of the recent contributions of the Brazilian team to the instrumentation in both of the experimental systems. One of the examples is the design and (local) manufacture of custom opto-mechanical parts for the ALPHA-2 power build-up cavity (a critical sub-system for enhancing the interaction between the laser beam and the  $\bar{\text{H}}$  sample). Another contribution was the complete design of a system for introduction of microwaves into the ALPHA-g apparatus: these can be used for spectroscopic measurements and for precise measurements of the local magnetic field in the trapping region (using Electron Cyclotron Resonance). I will also discuss our current interests in the local design and manufacture of superconducting magnets, for future experiments both at Rio and at CERN.

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