

# **THE ROLE OF BEAM INSTRUMENTATION IN LOW LEVEL RF FOR BEAM CONTROL**

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## **Abstract**

High quality beam instrumentation is essential for effective rf beam control. One can regard an rf beam control system (AKA: low-level rf) as a servo system whose purpose is to make the beam follow a reference function for position in the machine aperture. In this view acceleration is a consequence of a disturbance to the system, that is, the bending field increases. The servo view emphasizes the importance of the beam instrumentation devices that sense parameters that are to be regulated and the internal the variables that are required to control the dynamics of the loops. Examples of this concept from the AGS Booster, the AGS, and the RHIC are described that illustrate features of particular choices of technology that are best suited for each application.