



Contribution ID: 96

Type: Poster

Position sensitive resonant Schottky cavities

Monday, 17 September 2018 17:55 (1 minute)

Resonant Schottky pick-up cavities are sensitive beam monitors. They are indispensable for the beam diagnostics in storage rings. Apart from their applications in the measurements of beam parameters, they can be used in non-destructive in-ring decay studies of radioactive ion beams [1]. In addition, position sensitive Schottky pick-up cavities enhance precision in the isochronous mass measurement technique.

The goal of this work is to construct and test such a position sensitive cavity (Schottky detector) based on previous theoretical calculations and simulations. These cavities will allow measurement of a particle's horizontal position using the monopole mode in a non-circular(elliptic) geometry [2]. This information can be further analyzed to increase the performance in isochronous mass spectrometry [3-4]. A brief description of the detector and its application in mass and lifetime measurements will be provided in this contribution.

Keywords: storage rings, Shottky detector, ion beam measurement

References

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Session Classification: Poster Session 1

Track Classification: Storage rings