The DESIREE Detectors

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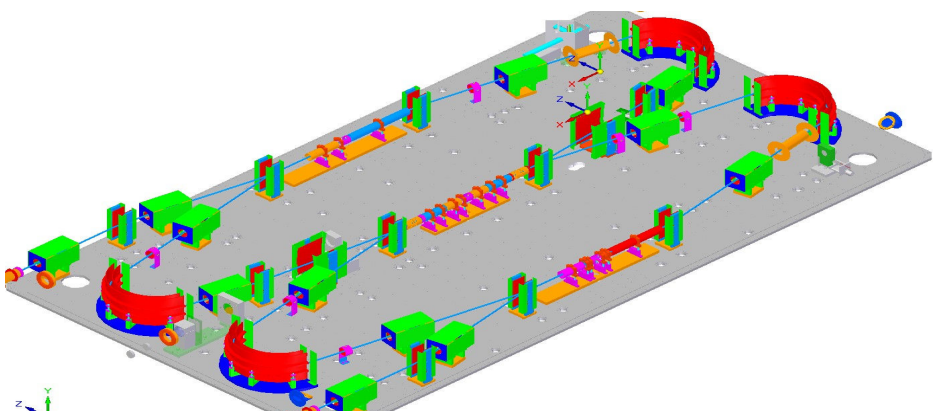
This poster is mainly focused on the necessary preparation and tests of detector systems for the DESIREE (Double ElectroStatic Ion-Ring ExpEriment) project [1]. The detectors will be used in an environment with low pressure (10^{-14} Torr) and low temperature (10 K). In DESIREE there will be three detectors for measuring the positions of neutral atomic and molecular fragments, one after each straight sections of the ring. One of these detectors will also be capable of multi-hit registration of the time of arrival and the position. There will also be one detector to register charged fragments after the merging section. The following components and tests have been performed in a cryogenic test chamber:

- MCP assembly with Phosphor screen anode (from Burle) in the temperature range from 12-300 K [2].
- An MCP assembly with a resistive anode (from Quantar).
- Carriages for moving detectors inside DESIREE.
- Intrinsic and storage lifetime measurements of metastable He^- [3] and ground state Ar^+ [4] ions, respectively, using the small electrostatic ion-beam trap, ConeTrap [5].

For diagnostics and optimisation there will also be four Farady cups (two for each ring) to measure the beam currents. In the merging section there will also be pick-ups mounted at the entrance and exit of the drift tube system, to measure the horizontal and vertical position of the beam, to overlap the two beams.



Figur 1. View of DESIREE

References

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