Minutes of the gas-cell working group and MATS/LASPEC Business Meeting

Helsinki, 07. October 2013

Participants:
A. Algora, M. Block, C. Dröse, C. Geppert, F. Herfurth, A. Herlert, A. Jokinnen, I. Moore, W. Nörtershäuser, S. Purushothaman, S. Rinta-Antila, D. Rodríguez, A. Voss, J. Äystö

Gas-Cell TDR

The meeting was put on the Agenda because a TDR for the gas cell should soon be written up (to be finished in 2014). Iain Moore presented different options for a layout of the gas cell and the beamlines towards MATS and LASPEC, prepared by Wolfgang Plass (attached to these minutes).

The different options have been discussed intensively and it was agreed on the following suggestions concerning the TDR of the CGC:

(1) Even though it is certainly technically challenging to raise the CGC (cryogenic gas cell) including an extraction SPIG or RFQ on high potential, this option should not be given up in the gas-cell TDR. The example of CARIBU shows that it is technically feasible to raise a large gas cell onto a high potential. Concerning the cryogenic supply in this case: one could either put the existing cooling system on the high-voltage platform or maybe try to make isolated connections to the cryogenic system of the Super-FRS.

(2) Since the CGC is inside the shielded Cave, and not easily accessible its layout should be as simple as possible, this means CGC + extraction guide (without MR-TOF, bunchers).

(3) Besides ion optical elements, the dipole mass separator should be the next device in the beamline.

(4) The MR-TOF is considered either an experiment on its own or a beam preparation/analyzing system. As such it could either get its own beamline behind the switchyard or be in the MATS beamline. An additional advantage is not seen for LASPEC.

(5) Collinear laser spectroscopy and the dipole mass separator require beams of a few 10 keV kinetic energy. In order to try to avoid the HV-potential for the gas cell, an alternative might be to have the dipole mass separator - and the beamline around it - on a negative potential of – for example – 30 kV. In this case, a solution has to be found to generate a beam with a stable and well-known energy for instance by raising one part of a split RFQ cooler and buncher in potential while the ions are stored. This issue has to be addressed and to be solved before the HV-option for the CGC is ruled out as technically too challenging.

Thus, the current outcome of the discussion leads to a similar layout as proposed in Matalascanas. Nevertheless, it was felt to be valuable and necessary to re-visit these

important issues due to the upcoming gas cell TDR. Having multiple options presented allowed an open and frank discussion as to the needs of the two communities.

(6) It should be discussed whether it makes sense to include the whole beamline connecting MATS and LASPEC with the CGC in one TDR or whether a second TDR would be preferable. Since the above raised issues must be addressed in the beamline layout, this requires certainly more time and more discussions between MATS, LASPEC and the ion-catcher collaboration.

New election of the MATS spokesperson

The discussion on the new election of the Spokesperson has been triggered. According to the MATS MoU, the spokesperson and the deputy spokesperson should be elected every three years, thus next time by the end of 2013. Daniel Rodríguez mentioned that due to the uncertainty in the Spanish situation with respect to FAIR, it might not be good for the MATS collaboration if he presents himself to continue as Spokesperson for three more years. After some discussion it was agreed among the participants (the election should still be done), that D. Rodríguez continues for one more year and we postpone this issue until then.

New election of the LASPEC spokesperson, Co-Spokesperson and Technical Director

As already discussed at Poznan, Wilfried Nörtershäuser, Iain Moore and Christopher Geppert are willing to serve for a second period, which will end in 2015 since an election should have taken place officially already in 2012. An election will be organized via a web-interface.

Funding situation regarding MATS and LaSpec

Several issues have been discussed regarding different subsystems and their funding. A. Herlert suggested that some money initially located or foreseen for a specific part of the facility within MATS and LaSpec might be used now for other parts. The contributions from the different groups were also updated.

Size of the LEB hall

Currently the size of the LEB hall is 30 x 13 m (including preparation and laser laboratories). There was a question raised by the LEB task force whether this hall could be smaller but the collaboration agreed that the size is reasonable and afforded.

Minutes taken by

I. Moore, W. Nörtershäuser, D. Rodríguez

II. Physikalisches Institut

JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

IONAS

GSI

HELMHOLTZ GEMEINSCHAFT

Discussion Points for the LEB Beamline

Wolfgang Plaß

GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt
II. Physikalisches Institut, Justus-Liebig-Universität Gießen, Germany

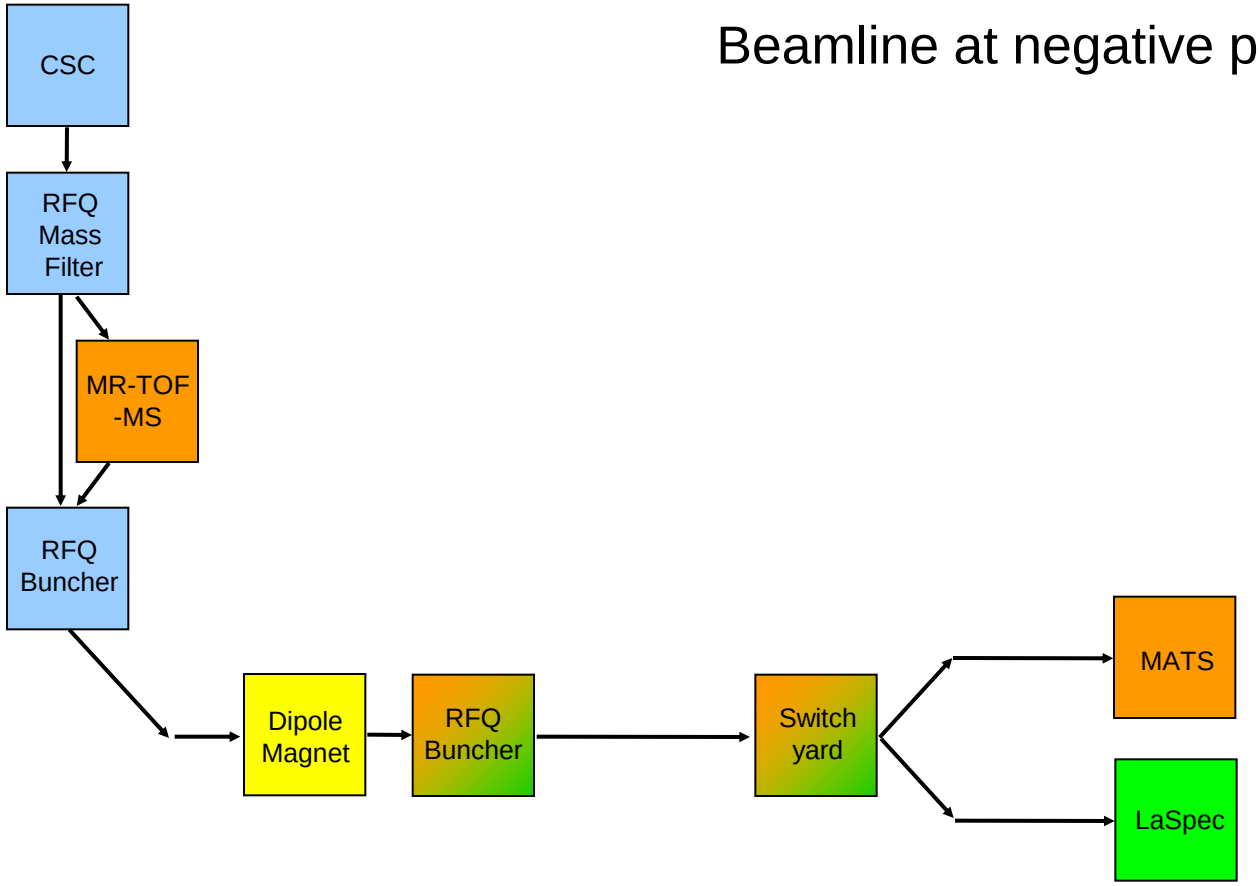
Questions / Points for Discussion

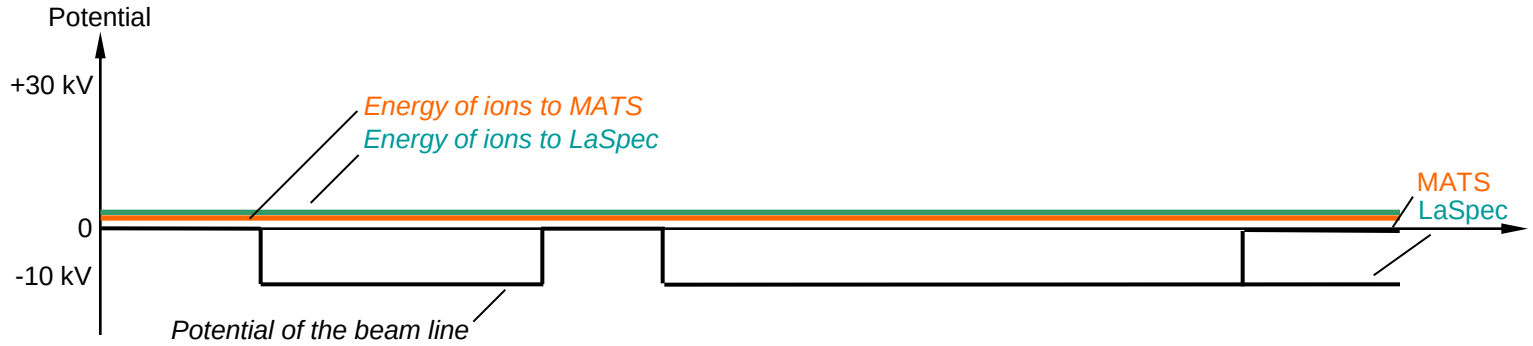
Please specifiy for (a) MATS and (b) LaSpec

- Advantages / disadvantages of different concepts for the LEB beamline (see following slides)
- Required purity (isotopic, isobaric, isomeric) of the beam
- Required temporal structure of the beam (DC, pulsed)
- Acceptable charge states (1+, 2+)
- Where could charge exchange reactions be performed if required?

Option 1a

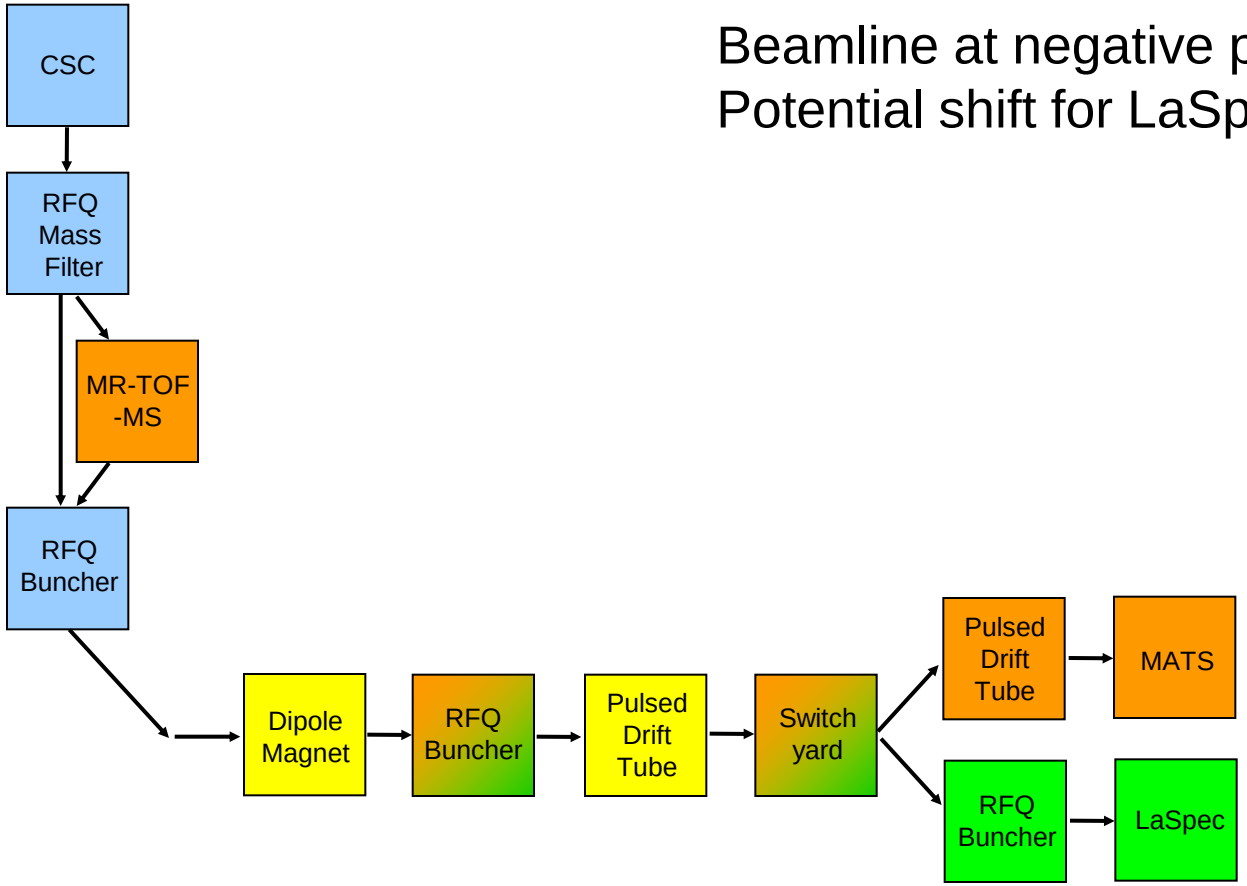
Beamline at negative potential

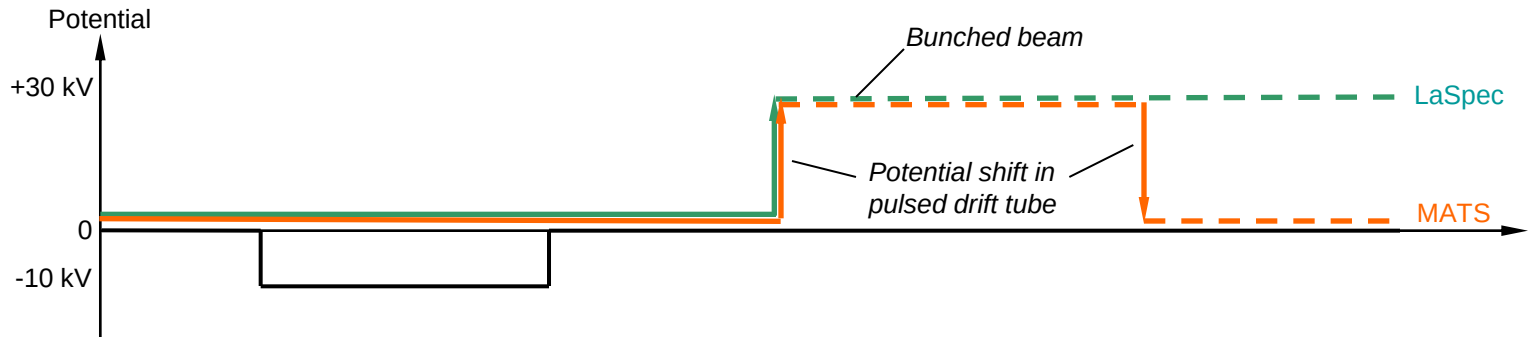




Option 1b

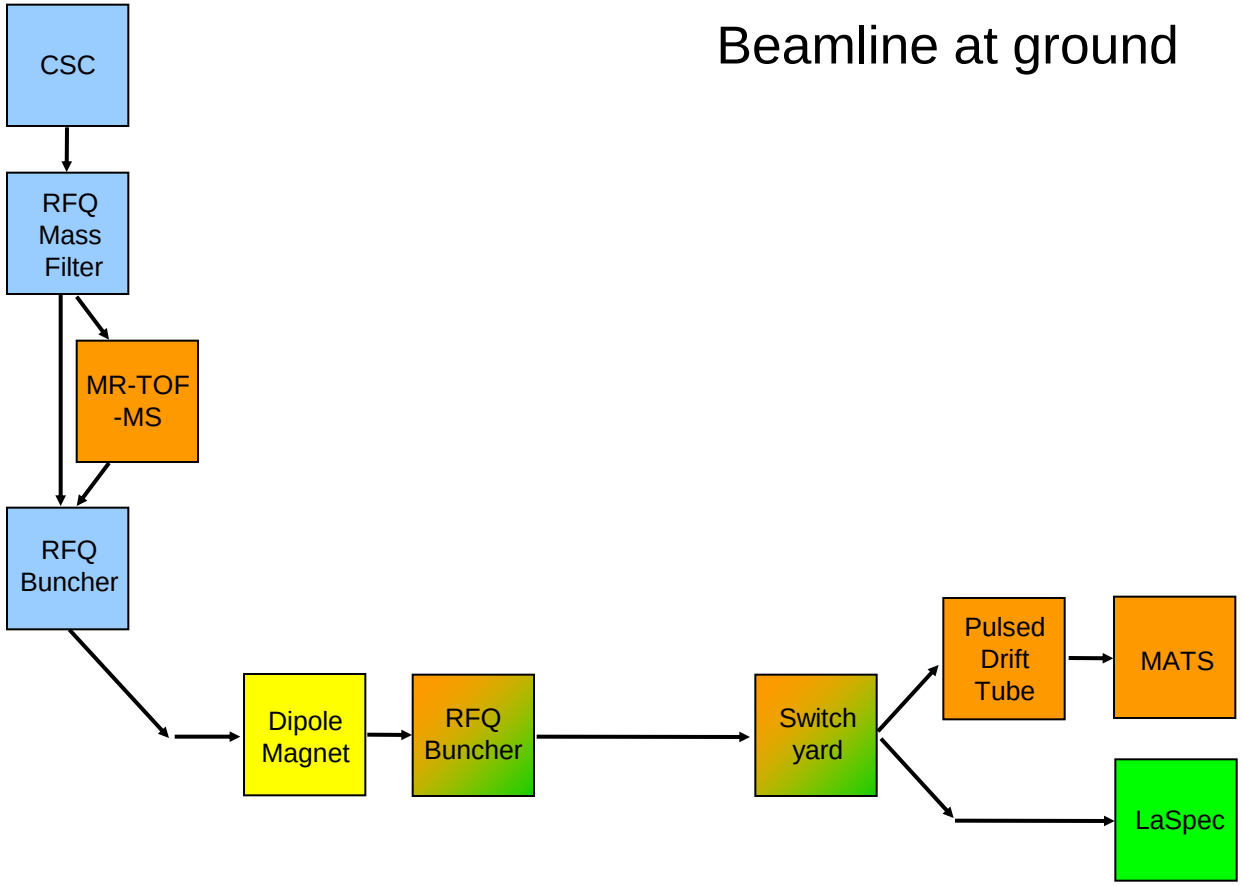
Beamline at negative potential,
Potential shift for LaSpec

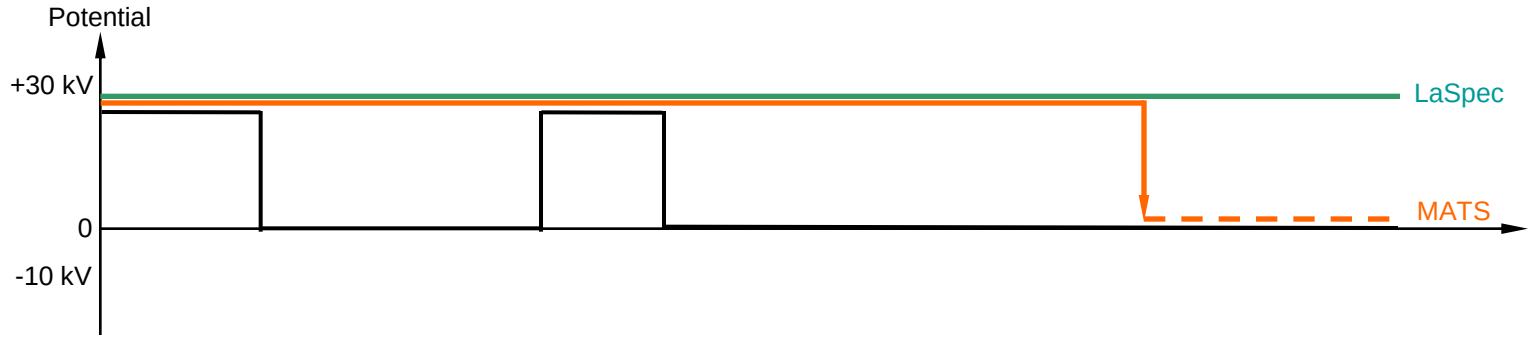




Option 2

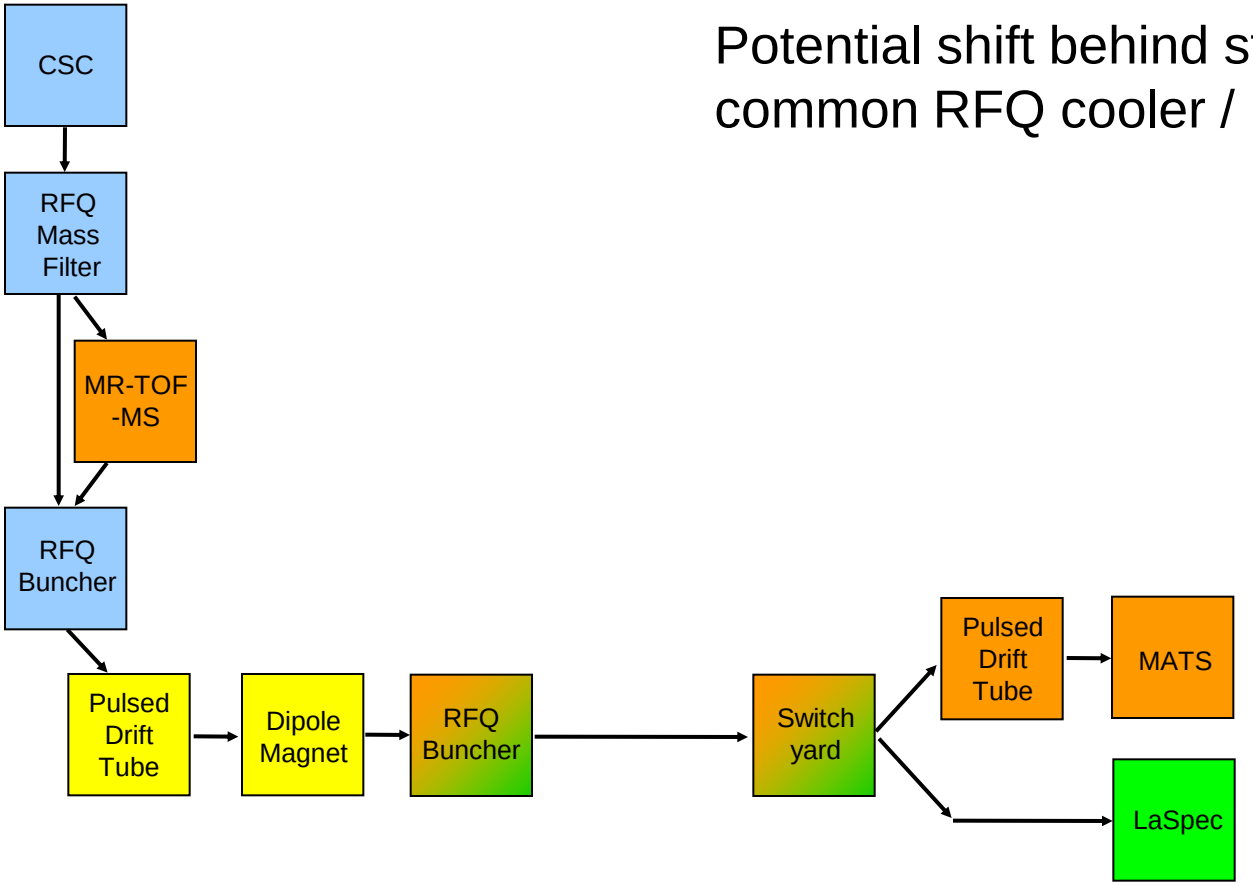
Beamline at ground

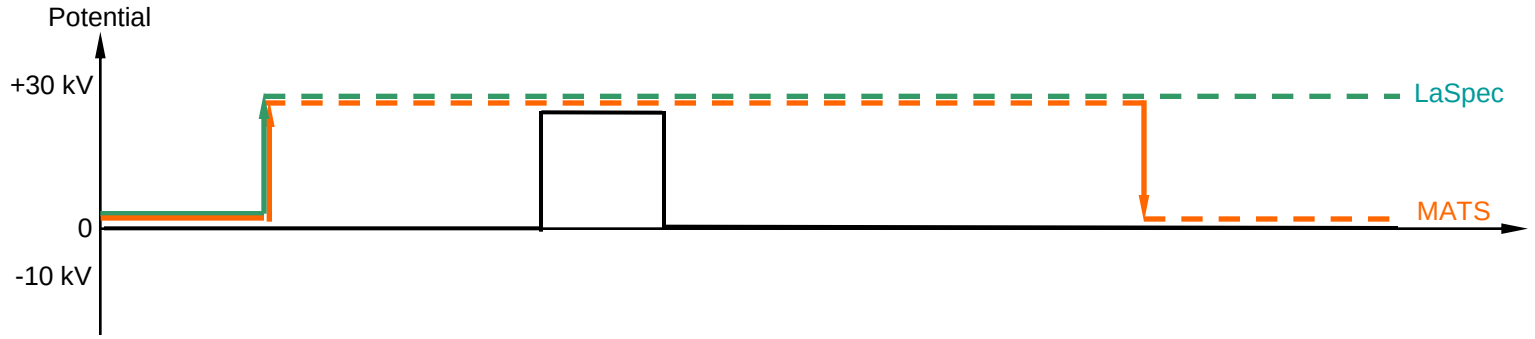




Option 3a

Potential shift behind stopping cell, common RFQ cooler / buncher





Option 3b

Potential shift behind stopping cell,
RFQ cooler / buncher for LaSpec