

# A Flexible Low Energy Ion injector at KACST

S. Behery\*<sup>1</sup>, A. AlMukhum\*, M. Al-Malki<sup>†\*</sup>, S. AlShemmeri\*, A. Mandil\*, Ayash Alrashdi\*  
, and M O A El Ghazaly\*<sup>2</sup>

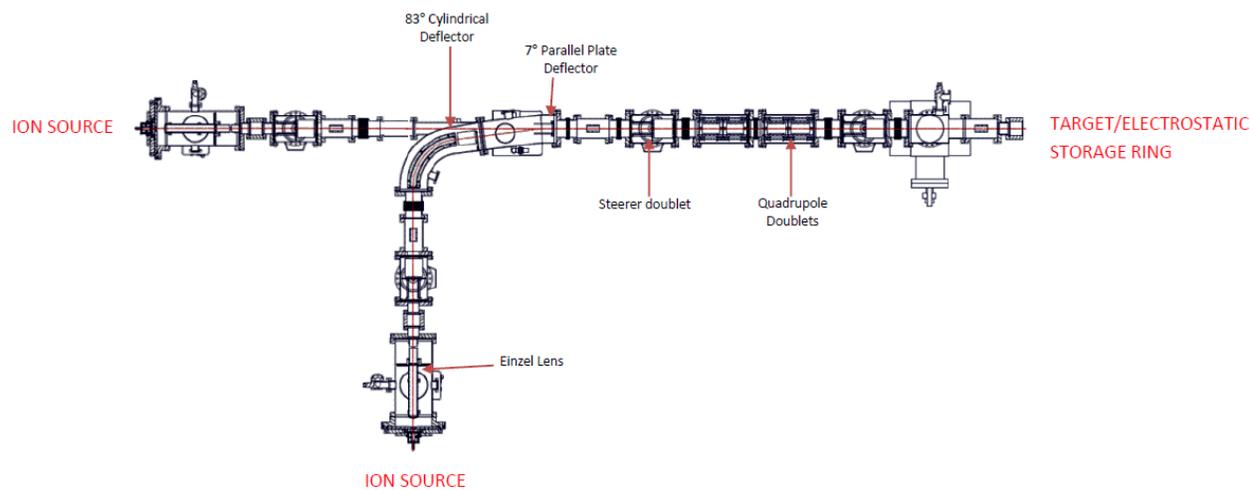
\*National Center for Mathematics and Physics (NCMP)

King Abdulaziz City for Science and Technology (KACST), Riyadh 11442, P.O. Box 6086, Saudi Arabia

<sup>†</sup>Johann Wolfgang Goethe-Universität Frankfurt, Frankfurt, Germany

A versatile ion-beam injector [1-2] is being constructed at the National Centre for Mathematics and Physics (NCMP) at the King Abdulaziz City for Science and Technology (KACST). This multi-purpose injector will provide the KACST electrostatic storage ring with high-quality ion beams of energies up to 30 keV per charge  $q$ . It is also intended to allow for crossed-beam single-pass experiments. The injector has been designed to include two different ion sources, switched by a  $90^\circ$  deflection setup, and to allow for matching of the beam parameters to the Twiss parameters of the ring. As shown in figure 1, the injector is equipped with two crossed beam-lines (inlets), with duplicated beam extraction and acceleration systems. In this contribution, we report on the ion optics and the design parameters of the injector .

**Keywords:** Ion injector, electrostatic fields, atomic and molecular physics



**Figure 1.** Overview of the injection beam-line, with two beam inlets for two different ion sources.

## References

- [1] El Ghazaly et al AIP. Conf. Proc. to appear (2011)
- [2] El Ghazaly et al IPAC`10 Proc. Kyoto, Japan (2010)

<sup>1</sup> E-mail: [sbehery@kacst.edu.sa](mailto:sbehery@kacst.edu.sa)

<sup>2</sup> E-mail: [maelghazaly@kacst.edu.sa](mailto:maelghazaly@kacst.edu.sa)