

NEC Alpatross Charge Exchange Ion Source

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The Alpatross on the RBS accelerator has demanded substantial effort to understand and optimise it. Although the ion source can put out as much as 4 μA of negative Helium, only up to $\sim <0.1 \mu\text{A}$ of positive beam used for channelling and RBS. The time between Rb cleans is determined in part, by the sizes of the cooled apertures either side of the charge exchange chamber. These apertures have been made smaller with little effect on the beam on target through a 0.8 mm aperture. I will also discuss: temperature control of Rb oven, partition plenum around chamber, chamber entrance aperture size, wear & shape, chamber exit aperture size and shape and Odds and Sods. As others have experienced and advised, it is best not to turn off the source even though we don't know why.