## 4.3 Optimizing the ion source parameters OmniStar☆

The ion source parameters must be optimized in regular intervals, in particular during the first time operation and after all service work on the ion source.

The optimization procedure differs, depending on the existing configuration, measurement task, and available test gas.

- Optimizing with test gas air → section 4.3.3
- Optimizing with test gas argon → section 4.3.4

### 4.3.1 Preparatory steps

☞ Read this section only when you are prompted to do so.

- Start the <TuneUp> program
- Open the inlet valve:
  - In the menu bar chose <Manual>
  - Choose <DI/DO...>
  - To activate double click **Valve**
  - Close window with <OK>
- In the menu bar choose <Tune>
- Choose <Ion Source>

### 4.3.2 Finishing steps

☞ Read this section only when you are prompted to do so.

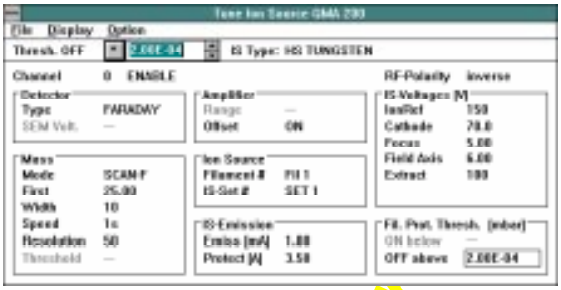
- Optimize the display as follows:
  - Test at which **RF Polarity** the better peak shapes are obtained and choose the corresponding polarity.
  - Set **Field-Axis** in such a way that a useful resolution and peak shape are obtained.
  - Alternatingly optimize **Extraction** and **Focus** to maximum peak height
- Close <Tune Ion Source QMA 200>
- Save the changes by confirming the prompt with <YES>
- Close <TuneUp>

### 4.3.3 OmniStar☆ with test gas air

Optimization with the test gas air is to be performed if no special test gas is available.

❶ Preparation → section 4.3.1

❷ Adjust all parameters as shown in the picture below:




❸ Choose <Display> for displaying the peak groups of nitrogen and oxygen.

❹ Quit the optimization → section 4.3.2

### 4.3.4 OmniStar☆ with test gas argon

Optimization with the test gas argon is to be performed if argon is subsequently to be analyzed. A setting of "Cathode" to 40 V prevents formation of $Ar^{++}$ ions and allows detection of low $H_2O$ concentrations on mass 18 amu.

⚠ Make sure that argon is connected to the GSD 300 and that the feeder lines are thoroughly purged.

❶ Preparatory steps → section 4.3.1

❷ Adjust all parameters as shown in the picture below:


❸ Choose <Display> for displaying the peak groups of argon.

❹ Quit the optimization → section 4.3.2