



The Protonsource for Experiments with Toroidal segments

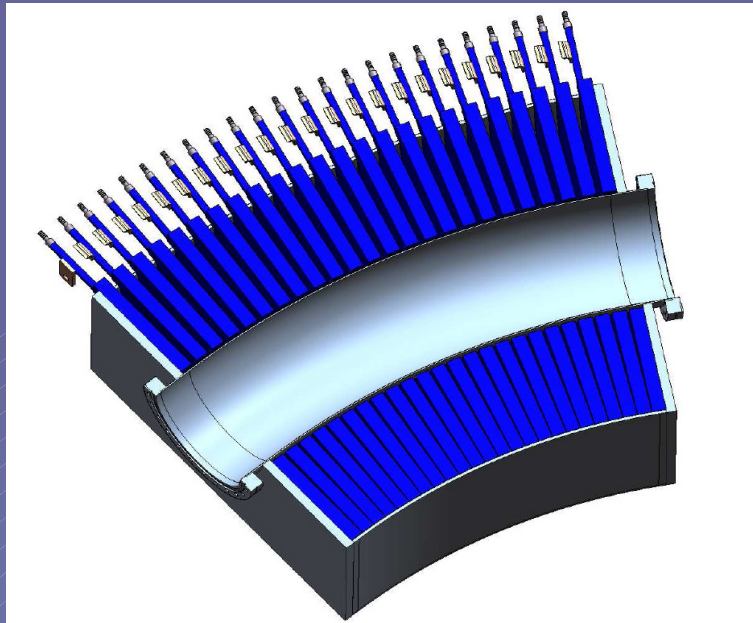


Overview

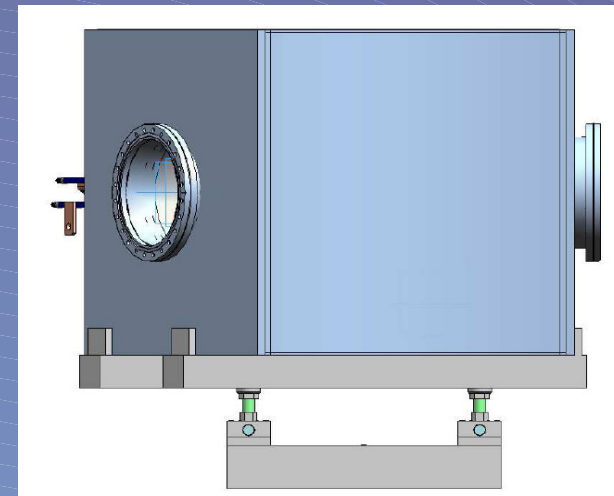
- Toroidal Segment
- Experiments
- The Source
- Operating Parameters
- Measurements
 - Extraction
 - Plasmagenerator
 - Emittances
- Agenda



Toroidal Segment



- 30° Segment
- 24 „Pancakes“
- Inhomogeneous M-Field





Experiments

Measurements to do with the p^+ -Beam

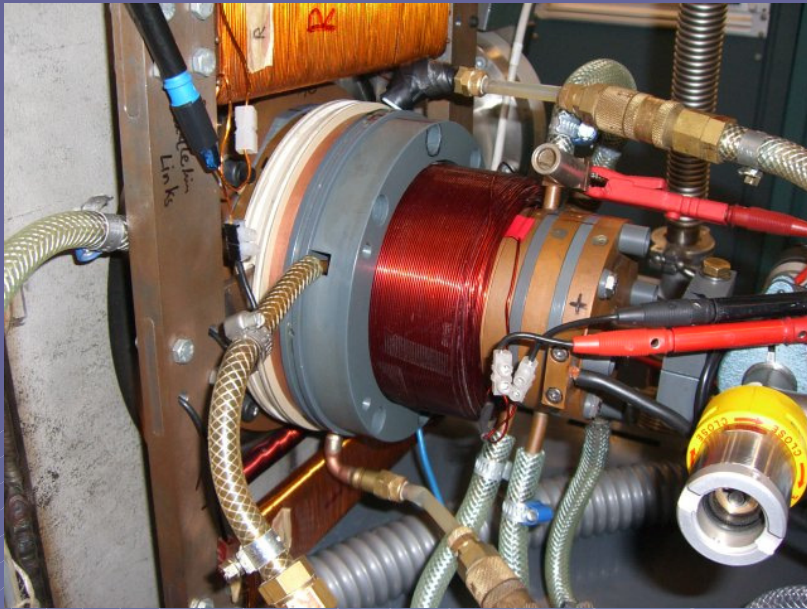
- Emittances (Slit-Grid-Emittance Scanner)
- Spectra (Momentum Scanner)
- Currents (Faraday Cup)

Experimental Setups

- Beam Transport trough one Segment
- Beam Transport trough two Segments
 - Both concentric, including Injection-Experiments
 - One converse to the other

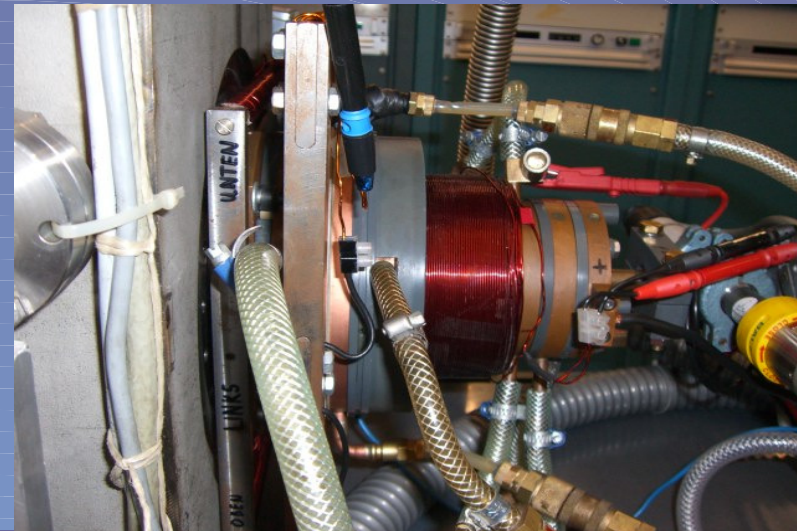


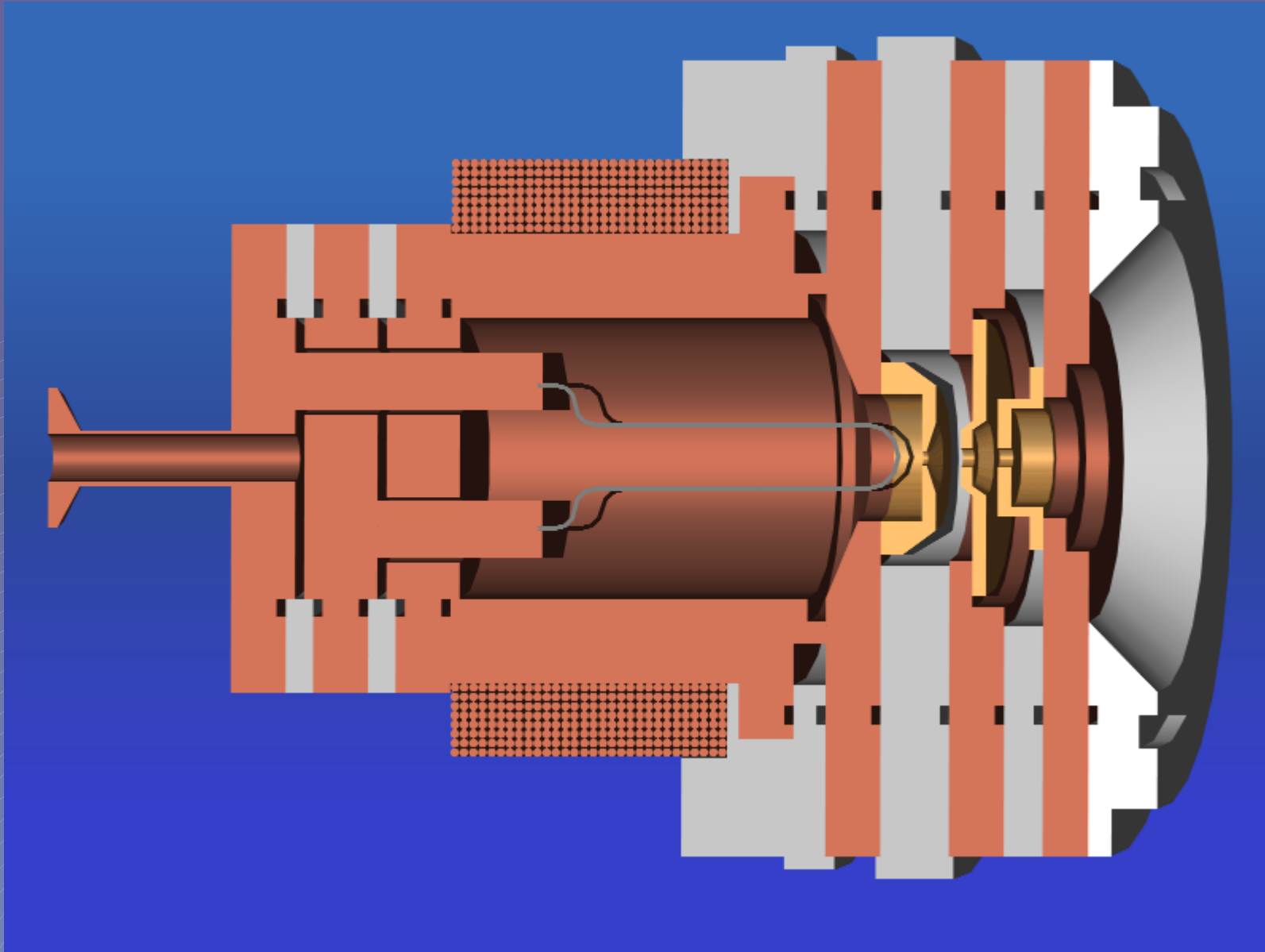
The Source



- Volume Ion Source
- Heated with a Filament
- Triode Extraction System up to 15 kV

Magnetic Filter- and Bending Magnets
Water cooled

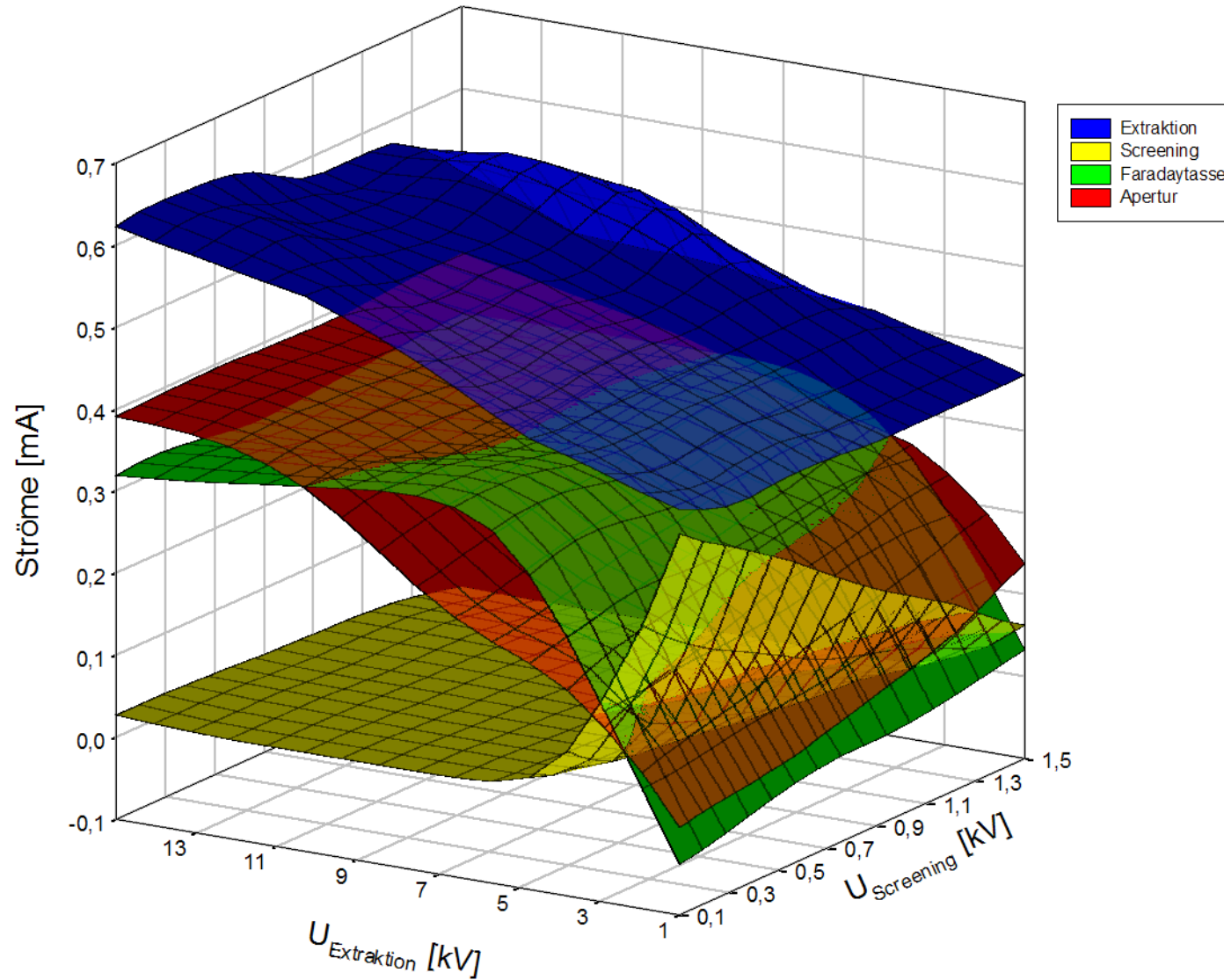


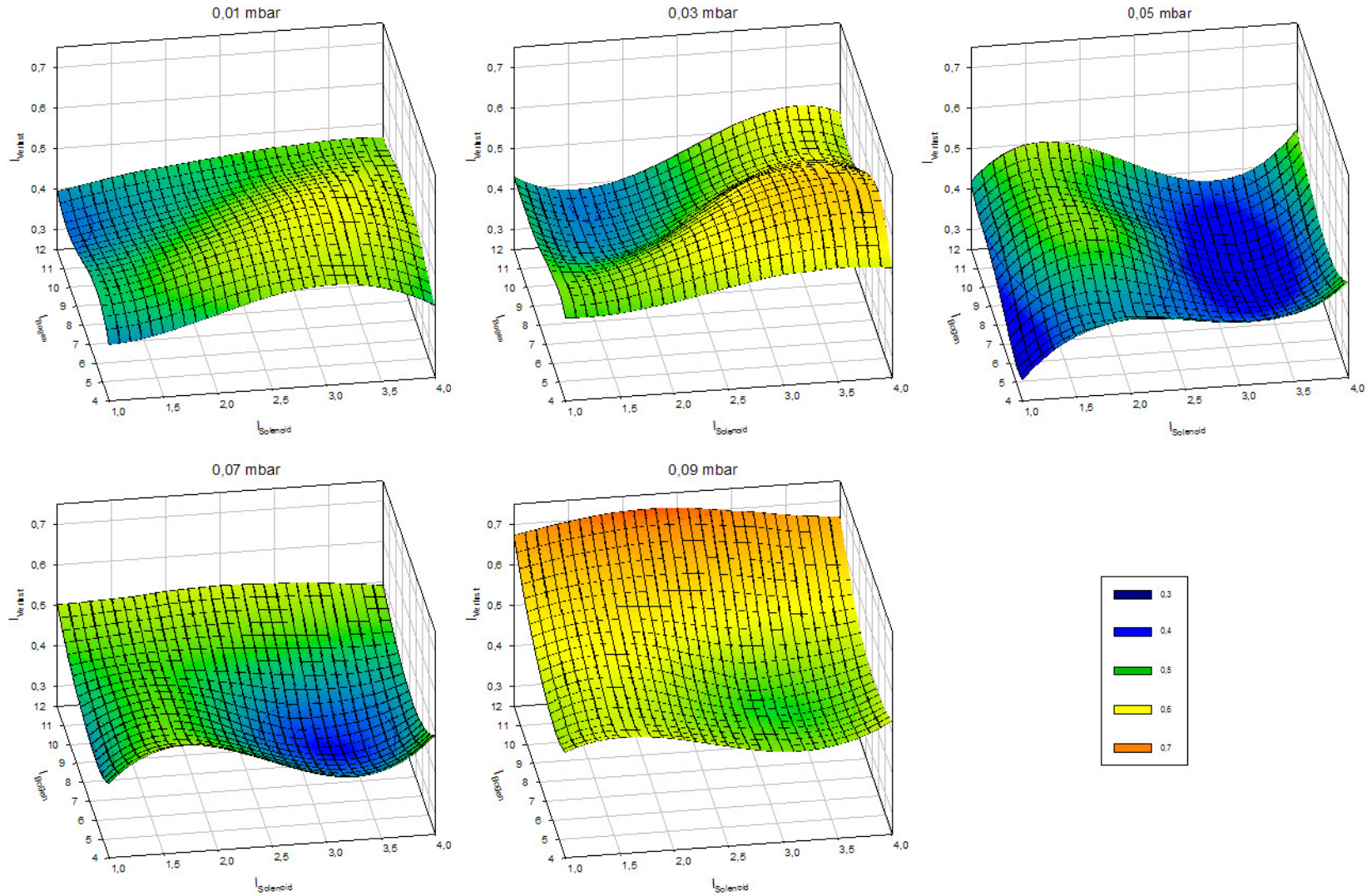


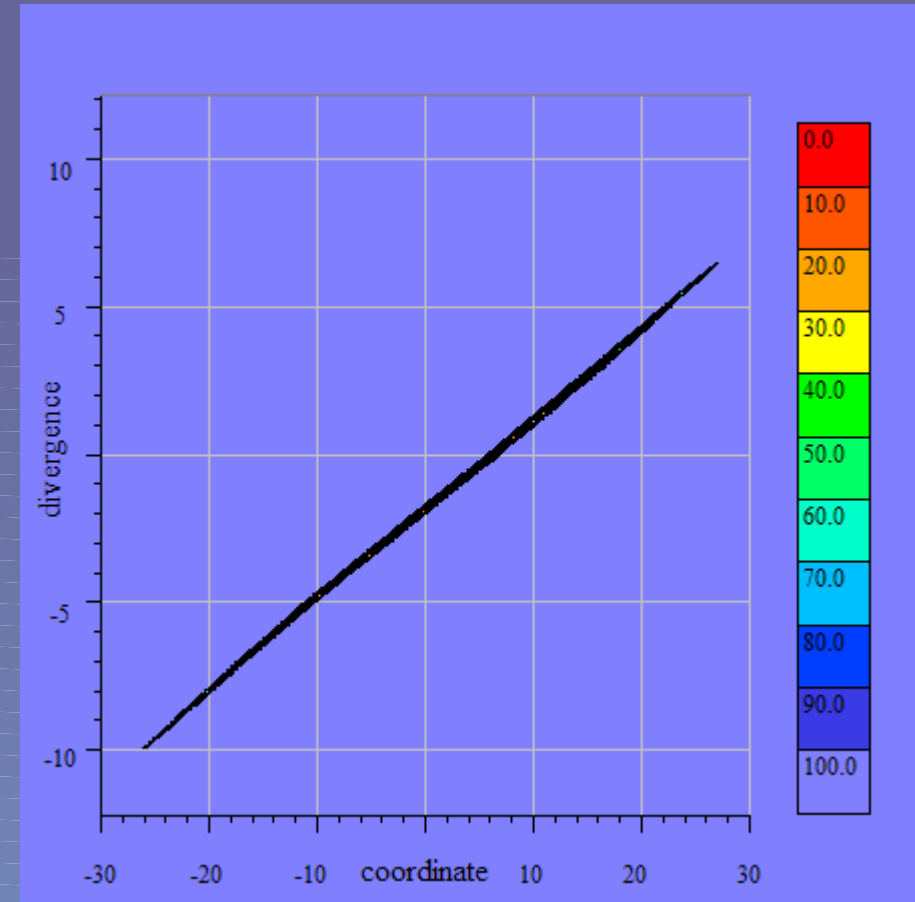
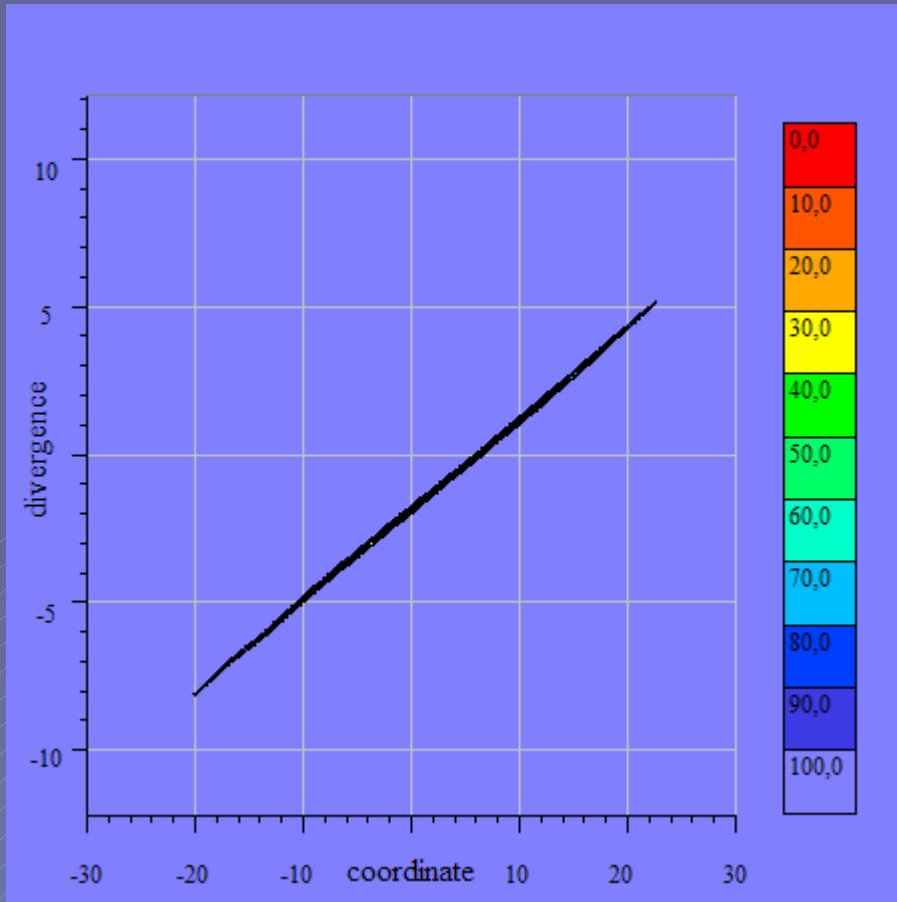


Operating Parameters

- Up to 15 kV extraction voltage
- Up to 1.7 mA beam current @ 10 kV He⁺
- Up to 2,5 mT magnetic field in the center of the plasma generator @ 4 A
- Vacuum: $9 \cdot 10^{-8}$ mbar w/o beam
- Up to 1 mbar source pressure







Pressure: 0.09 mbar; Solenoid: 3 A; Arc: 10 A; Beam: 1.4 mA

Pressure: 0.07 mbar; Solenoid: 3 A; Arc: 12 A; Beam: 1.7 mA



Agenda

- Measurements with Hydrogen
- Using Filter- and Bending Magnet
- Install toroidal Segments
- Measurements with the Segments
- Taking over world domination