Present Status of Atomic Physics at Lanzhou

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- The ongoing project at ECR ion source
- The X-ray spectrometer at HIRFL
- The electron cooler storage ring at Lanzhou

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* The talk was not presented on the workshop due a problem of the author's passport.

The Ongoing Project at ECR Ion Source

Opportunities for low energy highly charged ion studies

- Two sets of ECR ion sources for low energy experiment
- One super conducting ECR ion source is under construction
- One electron beam ion source (EBIS) will be built

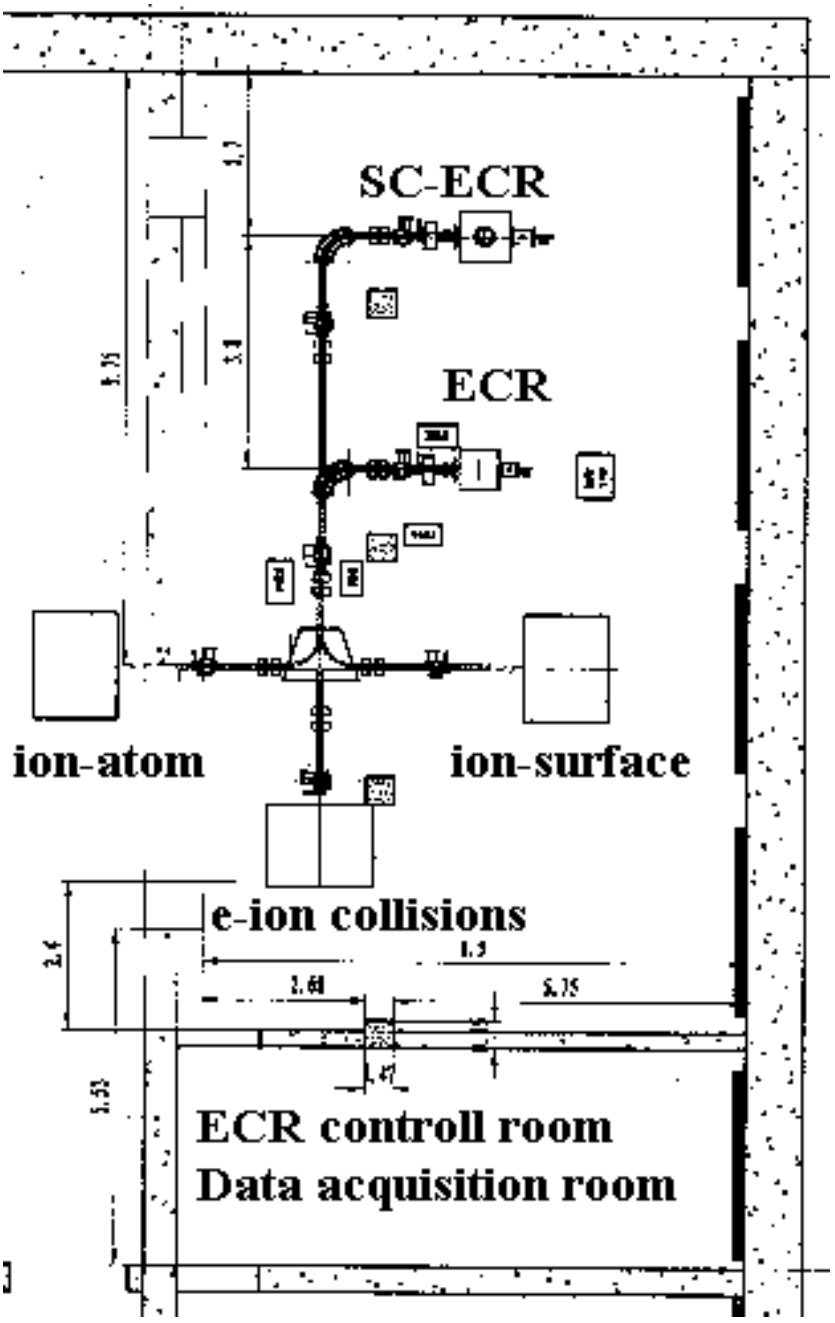
Physics goals at the ion sources

- Ion-atom, molecules, and cluster collisions
- Electron-ion collisions
- Ion-surface interactions
- Diagnostic of plasma properties in the ion source

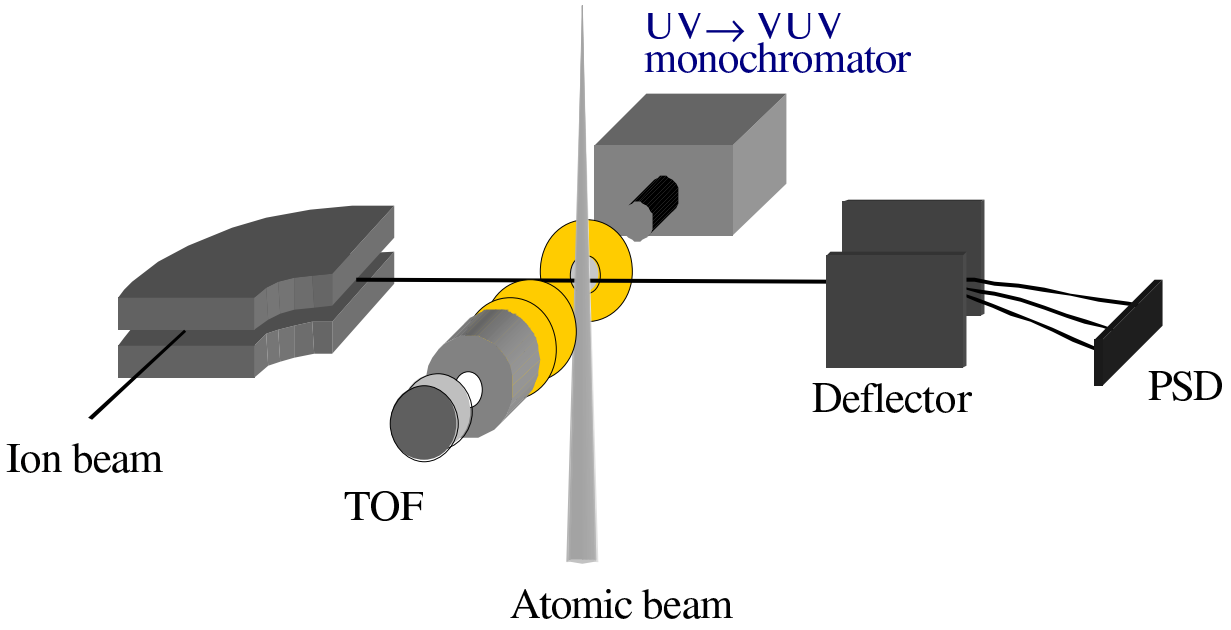
Table 1 Ions, charge-states and maximum ion current provided by the present ECRsources and the on-building super conducting ion source at IMP in Lanzhou. For collision experiments, the charge states may be higher than the values listed in the table because of very low beam intensities needed.

Ions and charge states	maximum ion current (μA)	
	Present ion sources	SC ion source
Ar^{11+}	185	350
Ar^{16+}	1	30
Kr^{20+}	25	80
Kr^{25+}	*	40
Kr^{28+}	*	6
Xe^{26+}	50	90
Xe^{30+}	4	25
Xe^{35+}	*	4.5
Ca^{11+}	140	300
Ca^{16+}	*	40
Ni^{11+}	*	150
Ni^{17+}	*	40
U^{31+}	10	40
U^{42+}	*	10
U^{48+}	*	4

Experimental setup at ECR platform



Experimental setup for ion-atom, molecules, and clusters collisions at ECR ion source

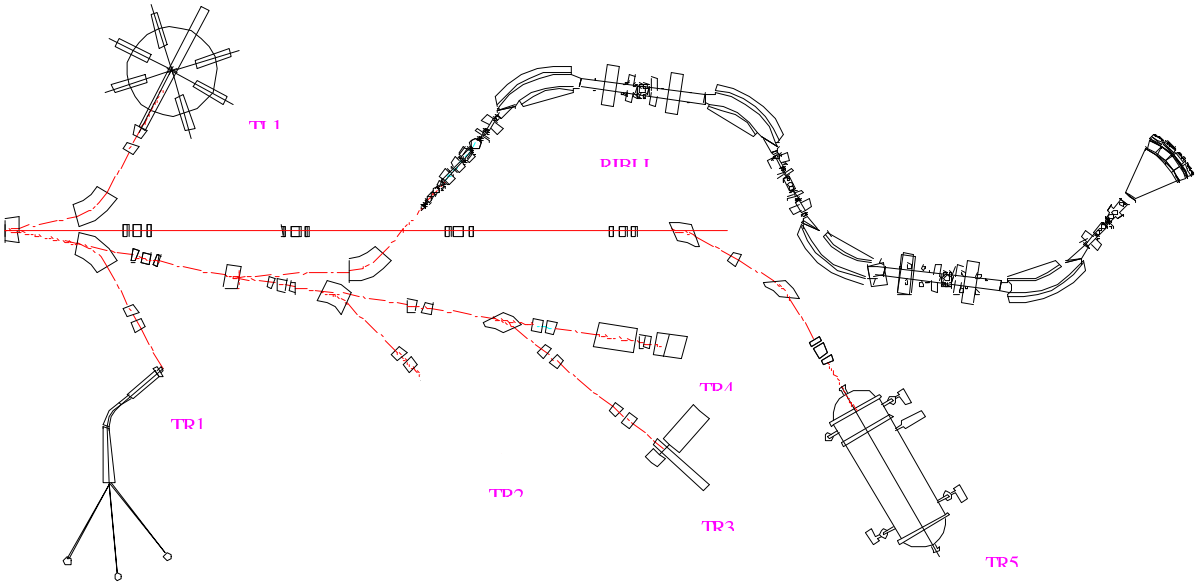


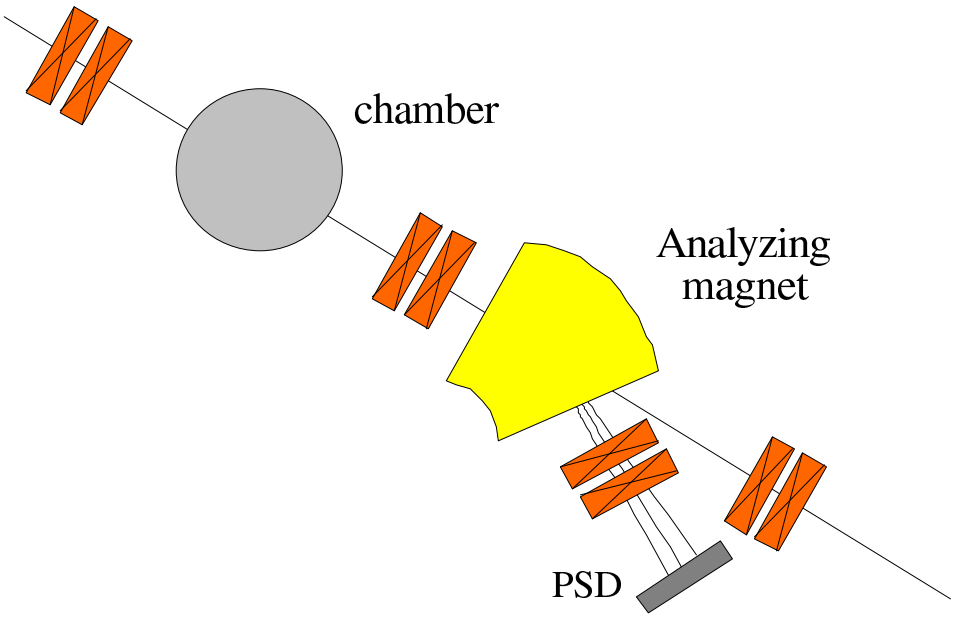
The X-ray spectrometer at HIRFL

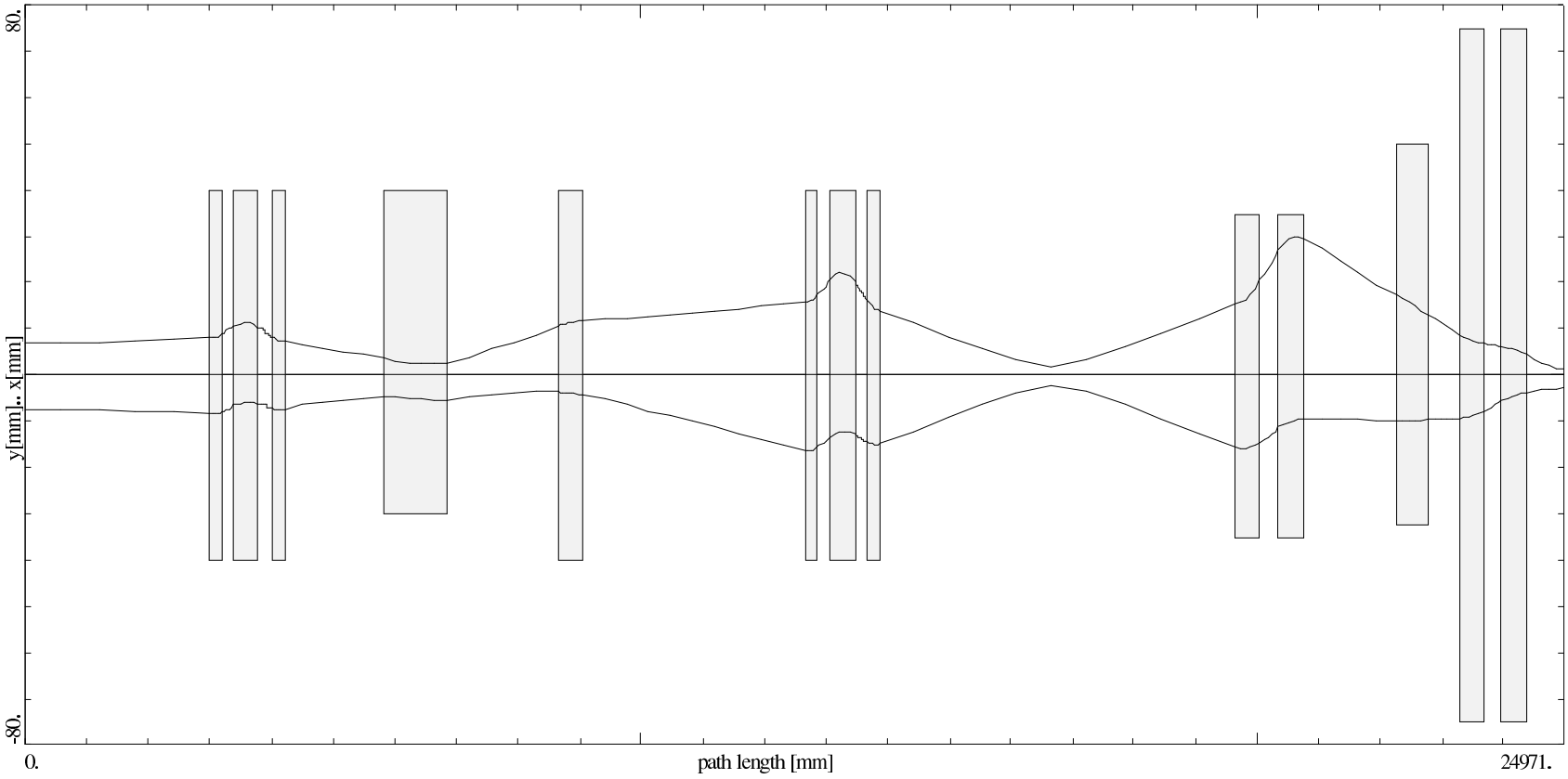
Planned Physics program

- Precision X-ray spectroscopy: Lamb shift measurement of medium heavy ions
- Few-electron Ion-atom, molecule, and cluster collisions: innershell processes.
- Ion-crystal interaction: ion channeling , resonant coherent excitation processes
- Ion-bulk interactions: energy loss and charge state distribution (material science group)

New layout of experimental terminals at Heavy Ion Research Facility in Lanzhou







TR6 :
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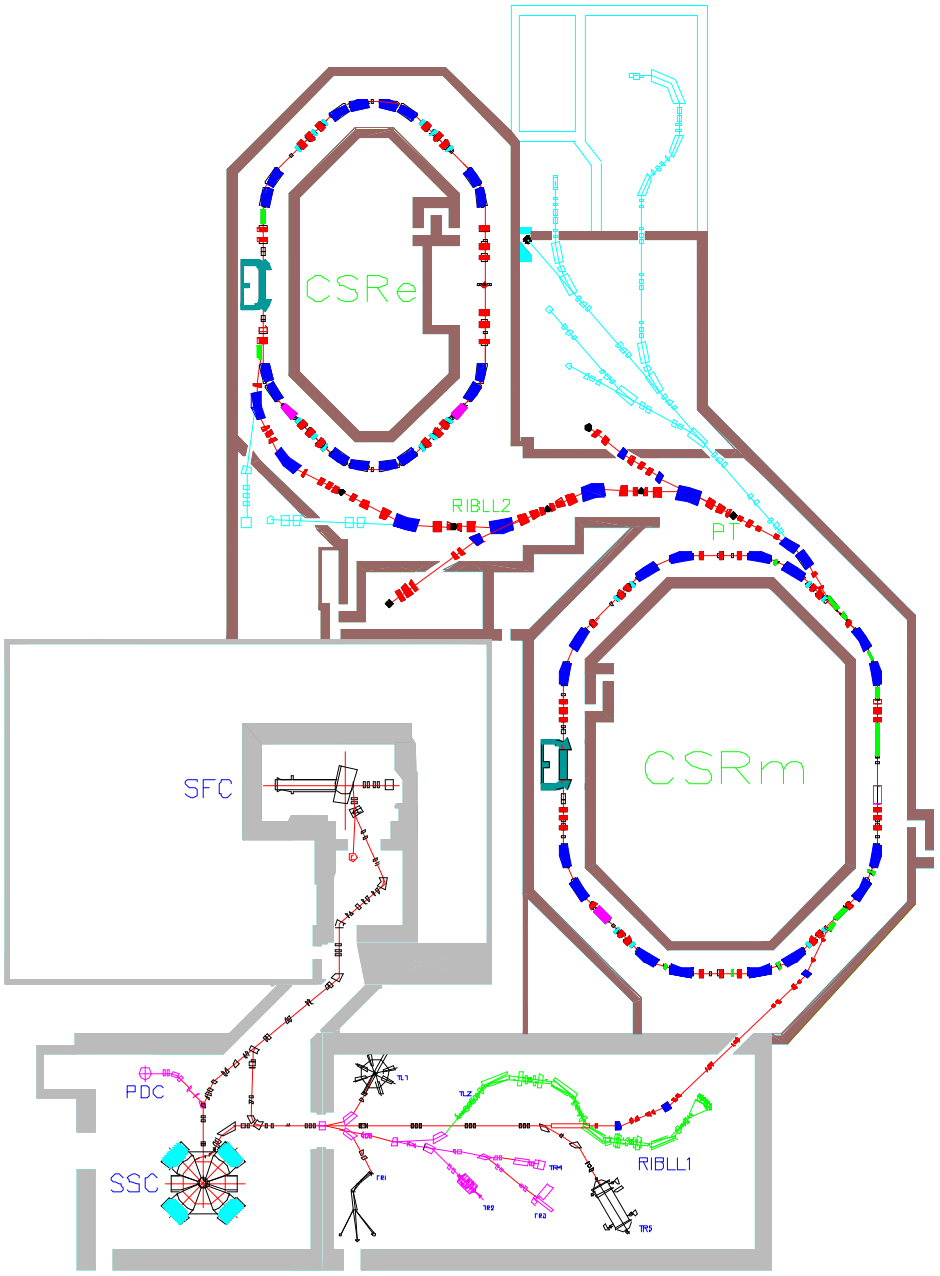
The ongoing project – electron cooler storage ring at Lanzhou



Overall Layout of HIRFL–CSR