

## Lecture „Ion sources and beam transport“ Wintersemester 2014/2015

Prof. Dr. Oliver Kester, Dr. Lars Groening, Dr. Peter Forck

Time: Friday 2:00-3:30 pm lecture, 3:45-4:30 pm exercise

Room: 2.201a

	<b>Date</b>	<b>Topic</b>	<b>Lecturer</b>	<b>Exercise</b>
1	17.10.	Introduction and overview	P. Forck	
2	24.10.	Ionisation – Electron impact ionisation + photo ionisation	O. Kester (S. Geyer)	
3	31.10.	Plasma physics and magnetic confinement	O. Kester	No. 1
4	07.11.	rf-driven ion sources and the Electron Cyclotron Resonance Ion Sources (ECRIS)	O. Kester	No. 2
5	14.11.	High current ion sources	O. Kester	No. 3
6	21.11.	Surface and laser ion sources	O. Kester	No. 4
7	28.11.	The Electron Beam Ion Source	O. Kester (S. Geyer)	No. 5
8	05.12.	Beam emittance and beam transport	P. Forck	No. 6
9	12.12.	Ion beam extraction of plasma sources and beam formation	O. Kester	No. 7
10	19.12.	Beam diagnostics	P. Forck	No. 8
11	16.01.	Linear beam optics – transport matrixes	L. Groening	No. 9
12	23.01.	Space charge	L. Groening	No. 10
13	30.01.	Vacuum technology	P. Forck	No. 11
14	06.02.	RFQ accelerators and concepts	L. Groening	Test
15	13.02.	Application of ion sources and examples	O. Kester	

Skript: <http://acc.physik.uni-frankfurt.de/>

in „Vorlesungen“.

## Literature

- B. Wolf, *Handbook of ion sources*, CRC Press 1995
- G. Brown, *The physics and technology of ion sources*, 2004, Wiley VCH Verlag GmbH, ISBN 3-527-40410-4
- Fred J. Currell, *The Physics of Multiply and Highly Charged Ions Volume 1: Sources, Applications and Fundamental Processes*, 2004, Klywer Academic Publication, ISBN 1-4020-1565-8
- J. Großer, *Einführung in die Teilchenoptik*, Teubner 1983 (vergriffen)
- S. Molokovski, A.D. Suschkov, *Intensive Elektronen- und Ionenstrahlen*, Vieweg
- M. Reiser, *Theory and design of charges particle beams*, John Wiley & Sons 1994
- Septier, *Focussing of charged particles*, part A-C, Academic Press 1980
- CERN Accelerator School, CERN 94-01 Vol.I&II
- CERN Accelerator School, CERN-2013-007
- H. Zohm, *Plasmaphysik*, Vorlesungsskript, LMU München, Wintersemester 2001/2002
- Review of Scientific Instruments Vol. 71, No.2, AIP 2000
- Review of Scientific Instruments Vol. 73, No.2, AIP 2002