

Lecture „Ion sources and beam transport“ Wintersemester 2015/2016

Prof. Dr. Oliver Kester, Dr. Peter Forck, Sabrina Geyer

Time: Friday 2:15-3:45 pm lecture, 13:30-14:00 pm exercise

Room: 2.201a

	Date	Topic	Lecturer	Exercise
1	16.10.	Introduction, motivation	O. Kester	
2	23.10.	Ionisation – Electron impact, photo and surface ionisation	S. Geyer	
3	30.10.	Plasma physics and magnetic confinement	O. Kester	No. 1
4	06.11.	rf-driven ion sources and the Electron Cyclotron Resonance Ion Sources (ECRIS)	O. Kester	No. 2
5	13.11.	Electron guns, electron beams	S. Geyer	No. 3
6	20.11.	The Electron Beam Ion Source	S. Geyer	No. 4
7	27.11.	High current ion source	O. Kester	No. 5
8	04.12.	Ion beam extraction and beam formation, plasma ion source	O. Kester	No. 6
9	11.12.	Beam focussing and transport	O. Kester	No. 7
10	18.12.	Linear beam optics, transport matrixes and emittance	P. Forck	No. 8
11	15.01.	Beam diagnostics	P. Forck	No. 9
12	22.01.	Space charge	S. Geyer	No. 10
13	29.01.	Vacuum technology	P. Forck	No. 11
14	05.02.	First acceleration stage: RFQ accelerators	O. Kester	Test
15	12.02.	Application of ion sources and examples	O. Kester	

Script: <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
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- 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